

## Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID: ssspta1621con

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

NEWS 1 AUG 10 Web Page for STN Seminar Schedule - N. America  
 NEWS 2 AUG 10 Time limit for inactive STN sessions doubles to 40 minutes  
 NEWS 3 AUG 18 COMPENDEX indexing changed for the Corporate Source (CS) field  
 NEWS 4 AUG 24 ENCOMPPLIT/ENCOMPPLIT2 reloaded and enhanced  
 NEWS 5 AUG 24 CA/Cplus enhanced with legal status information for U.S. patents  
 NEWS 6 SEP 09 50 Millionth Unique Chemical Substance Recorded in CAS REGISTRY  
 NEWS 7 SEP 11 WPIDS, WPINDEX, and WPIX now include Japanese FTERM thesaurus  
 NEWS 8 OCT 21 Derwent World Patents Index Coverage of Indian and Taiwanese Content Expanded  
 NEWS 9 OCT 21 Derwent World Patents Index enhanced with human translated claims for Chinese Applications and Utility Models  
 NEWS 10 NOV 23 Addition of SCAN format to selected STN databases  
 NEWS 11 NOV 23 Annual Reload of IFI Databases  
 NEWS 12 DEC 01 FRFULL Content and Search Enhancements  
 NEWS 13 DEC 01 DGENE, USGENE, and PCTGEN: new percent identity feature for sorting BLAST answer sets  
 NEWS 14 DEC 02 Derwent World Patent Index: Japanese FI-TERM thesaurus added  
 NEWS 15 DEC 02 PCTGEN enhanced with patent family and legal status display data from INPADOCDB  
 NEWS 16 DEC 02 USGENE: Enhanced coverage of bibliographic and sequence information  
 NEWS 17 DEC 21 New Indicator Identifies Multiple Basic Patent Records Containing Equivalent Chemical Indexing in CA/Cplus

NEWS EXPRESS MAY 26 09 CURRENT WINDOWS VERSION IS V8.4,  
AND CURRENT DISCOVER FILE IS DATED 06 APRIL 2009.

NEWS HOURS      STN Operating Hours Plus Help Desk Availability  
NEWS LOGIN      Welcome Banner and News Items

Enter NEWS followed by the item number or name to see news on that specific topic.

10/539640 12/30/2009

STN: SEARCH

All use of STN is subject to the provisions of the STN customer agreement. This agreement limits use to scientific research. Use for software development or design, implementation of commercial gateways, or use of CAS and STN data in the building of commercial products is prohibited and may result in loss of user privileges and other penalties.

FILE 'HOME' ENTERED AT 13:29:59 ON 31 DEC 2009

=> FILE REG  
COST IN U.S. DOLLARS  
SINCE FILE  
ENTRY  
SESSION  
0.22  
0.22

FILE 'REGISTRY' ENTERED AT 13:30:18 ON 31 DEC 2009  
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
COPYRIGHT (C) 2009 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 30 DEC 2009 HIGHEST RN 1199751-72-8  
DICTIONARY FILE UPDATES: 30 DEC 2009 HIGHEST RN 1199751-72-8

New CAS Information Use Policies. Enter HELP USAGETERMS for details.

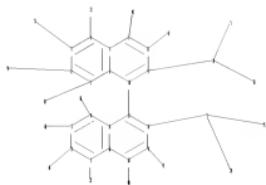
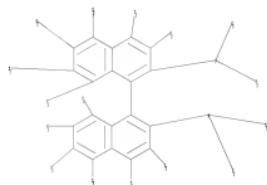
TSCA INFORMATION NOW CURRENT THROUGH June 26, 2009.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stndgen/stndoc/properties.html>

=> Uploading C:\Program Files\Stnexp\Queries\RGO-11.str



chain nodes :  
 21 22 23 24 25 26 27 28 33 34 35 36 38 39 40 41 42 43  
 ring nodes :  
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20  
 chain bonds :  
 1-35 2-34 3-33 4-21 7-42 8-43 9-24 10-17 11-22 12-39 13-38 14-36 18-23  
 19-41 20-40 23-25 23-26 24-27 24-28  
 ring bonds :  
 1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-10 7-8 8-9 9-10 11-12 11-16 12-13 13-14  
 14-15 15-16 15-17 16-20 17-18 18-19 19-20  
 exact/norm bonds :  
 1-35 2-34 3-33 4-21 7-42 8-43 11-22 12-39 13-38 14-36 19-41 20-40 23-25  
 23-26 24-27 24-28  
 exact bonds :  
 9-24 10-17 18-23  
 normalized bonds :  
 1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-10 7-8 8-9 9-10 11-12 11-16 12-13 13-14  
 14-15 15-16 15-17 16-20 17-18 18-19 19-20

G1:Cy,Ak

G2:Cy,Ak,X,OH,SH,O,S,N

10/539640 12/30/2009

STN: SEARCH

G3:H,O,Ak

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom  
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom  
20:Atom 21:CLASS 22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS 27:CLASS  
28:CLASS 33:CLASS 34:CLASS 35:CLASS 36:CLASS 38:CLASS 39:CLASS 40:CLASS  
41:CLASS 42:CLASS 43:CLASS

L1 STRUCTURE UPLOADED

=> D L1

L1 HAS NO ANSWERS

L1 STR

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

Structure attributes must be viewed using STN Express query preparation.

=> S L1 FULL

FULL SEARCH INITIATED 13:31:03 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 932 TO ITERATE

100.0% PROCESSED 932 ITERATIONS  
SEARCH TIME: 00.00.01

90 ANSWERS

L2 90 SEA SSS FUL L1

=> FILE CAPLUS

COST IN U.S. DOLLARS

SINCE FILE

ENTRY SESSION

FULL ESTIMATED COST

185.88 186.10

FILE 'CAPLUS' ENTERED AT 13:31:11 ON 31 DEC 2009

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2009 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 31 Dec 2009 VOL 152 ISS 1

FILE LAST UPDATED: 30 Dec 2009 (20091230/ED)

REVISED CLASS FIELDS (/NCL) LAST RELOADED: Oct 2009

USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Oct 2009

Cplus now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2009.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> S L2  
L3 34 L2

=> D L3 IBIB ABS HITSTR 1-34

L3 ANSWER 1 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
ACCESSION NUMBER: 2008:1128372 CAPLUS  
DOCUMENT NUMBER: 149:379202  
TITLE: Organosilane compound and organosilica obtained from organosilane  
INVENTOR(S): Mizoshita, Norihiro; Goto, Yasutomo; Inagaki, Shinji; Shimada, Toyoshi  
PATENT ASSIGNEE(S): Kabushiki Kaisha Toyota Chuo Kenkyusho, Japan; Toyoshi Shimada  
SOURCE: U.S. Pat. Appl. Publ., 46pp.  
CODEN: USXKC0  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20080227939	A1	20080918	US 2008-73339	20080304
JP 2008247886	A	200801016	JP 2008-4876	20080111
PRIORITY APPLN. INFO.:			JP 2007-57353	A 20070307
			JP 2008-4876	A 20080111

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 149:379202

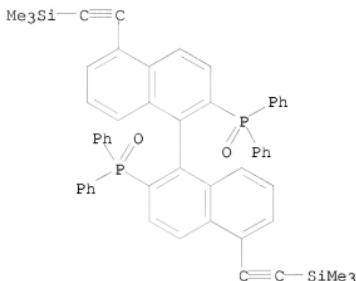
AB An organosilane compound is expressed by any one of the following allyl group-containing (aryl)silanes (1) to (7)  $H_3-mN(ArSi(OR1)n(Q)3-n)m, XC.tplbond.CArSi(OR1)n(Q)3-n, XCR8:CR7LArSi(OR1)n(Q)3-n, YCOArSi(OR1)n(Q)3-n, HOArSi(OR1)n(Q)3-n, XCR8:CR7Si(OR1)n(Q)3-n, and XC.tplbond.CSi(OR1)n(Q)3-n$  (where Ar = phenylene group or the like; R1 = H atom or the like; R2 = Me or the like; n = 0-2; m = 1 or 2; L = single bond or the like; X = H atom or the like; Q = CR2R3CR4:CR5R6; and Y = H atom or the like) and used to produce a functional organosilica film. Thus, 9,10-bis(4-diallylethoxysilylphenylethynyl)anthracene [prepared by coupling 1.396 mmol 4-(diallylethoxysilyl)iodobenzene with 0.6343 mmol 9,10-dieithynylanthracene] was exposed to aqueous HCl and heated at 100° for 19 h, spin cast onto quartz, and dried at 25° for 24 h to give organosilica thin film.

IT 959611-94-0

RL: RCT (Reactant); RACT (Reactant or reagent)  
(allyl group-containing organosilane compound for organosilica thin films)

RN 959611-94-0 CAPLUS

CN Phosphine oxide, 1,1'-(*(1S)-5,5'-bis[2-(trimethylsilyl)ethynyl]*[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)



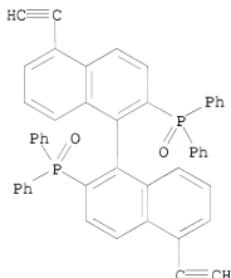
IT 959611-95-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(allyl group-containing organosilane compound for organosilica thin films)

RN 959611-95-1 CAPLUS

CN Phosphine oxide, 1,1'-(*(1S)-5,5'-diethynyl[1,1'-binaphthalene]-2,2'-diyl*]bis[1,1-diphenyl- (CA INDEX NAME)



IT 959611-96-2P

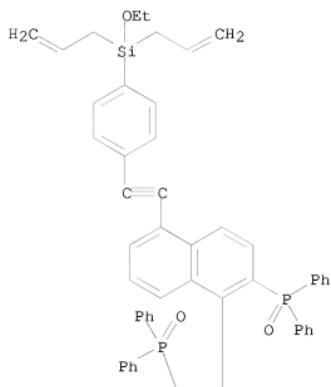
RL: SPN (Synthetic preparation); PREP (Preparation)

(allyl group-containing organosilane compound for organosilica thin films)

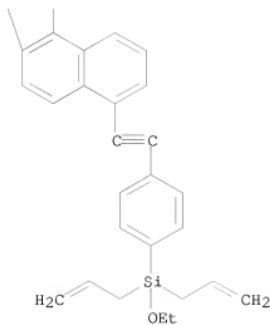
RN 959611-96-2 CAPLUS

CN Phosphine oxide, 1,1'-(*(1S)-5,5'-bis[2-[4-(ethoxydi-2-propen-1-ylsilyl)phenylethynyl]*[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



L3 ANSWER 2 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2008:541187 CAPLUS

DOCUMENT NUMBER: 149:331813

TITLE: Extensive re-investigations of pressure effects in rhodium-catalyzed asymmetric hydrogenations

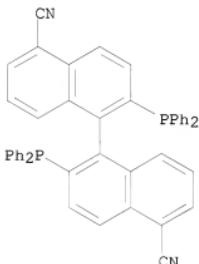
AUTHOR(S): Alame, Mohamad; Pestre, Nathalie; de Bellefon, Claude  
 CORPORATE SOURCE: Laboratoire de Genie des Procedes Catalytiques,  
 CNRS-CPE Lyon, Villeurbanne, 69616, Fr.  
 SOURCE: Advanced Synthesis & Catalysis (2008), 350(6), 898-908  
 CODEN: ASCAF7; ISSN: 1615-4150  
 PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The catalytic hydrogenation of three prochiral substrates Me Z- $\alpha$ -acetamidocinnamate (MAC), Me 2-acetamidoacrylate (M-Acrylate) and Et 4-methyl-3-acetamido-2-propanoate (E-EMAP) with rhodium precursors complexed with chiral diphosphines is reported at 1-30 bar hydrogen pressure. A library of 56 chiral diphosphines, including 23 BINAP derivs., 7 JOSIPHOS, 5 BIPHEP, 3 DUPHOS derivs., and 18 other ligands, was used. While it was generally accepted that high hydrogen pressure would result in lower ees, it is now demonstrated on a statistical basis that an equivalent distribution between beneficial and detrimental pressure effects on ee prevails and that the hydrogen pressure effect on enantioselectivity is not an isolated phenomenon since more than 33% of the reaction systems studied are strongly affected. In some case, the enantioselectivity can be improved up to 97% just by applying a higher hydrogen pressure. Extension of these conclusions to other non-chiral reagents is proposed.

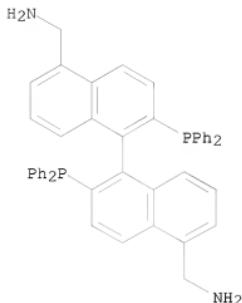
IT 681244-45-1 681244-51-9 930794-21-1  
 1015011-80-9 1015011-84-3 1052274-04-0

RL: CAT (Catalyst use); USES (Uses)  
 (ligand; extensive re-investigations of pressure effects in  
 rhodium-catalyzed asym. hydrogenations)

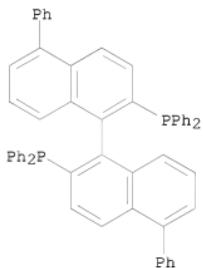
RN 681244-45-1 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-dicarbonitrile, 2,2'-bis(diphenylphosphino)-,  
 (1R)- (CA INDEX NAME)



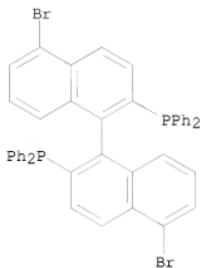
RN 681244-51-9 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-dimethanamine, 2,2'-bis(diphenylphosphino)-,  
 (1R)- (CA INDEX NAME)



RN 930794-21-1 CAPLUS  
CN Phosphine, 1,1'-(1R)-5,5'-diphenyl[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

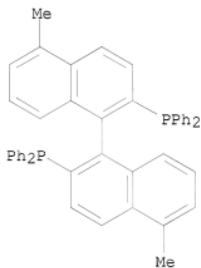


RN 1015011-80-9 CAPLUS  
CN Phosphine, 1,1'-1(1R)-5,5'-dibromo[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)



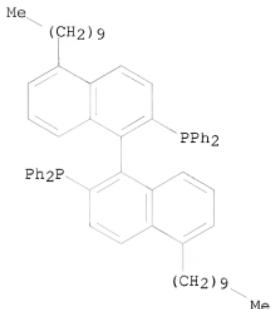
RN 1015011-84-3 CAPLUS

CN Phosphine, 1,1'-(1R)-5,5'-dimethyl[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)



RN 1052274-04-0 CAPLUS

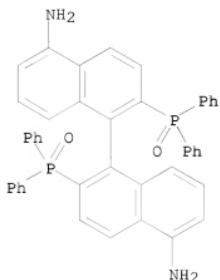
CN Phosphine, 1,1'-(1R)-5,5'-didecyl[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)



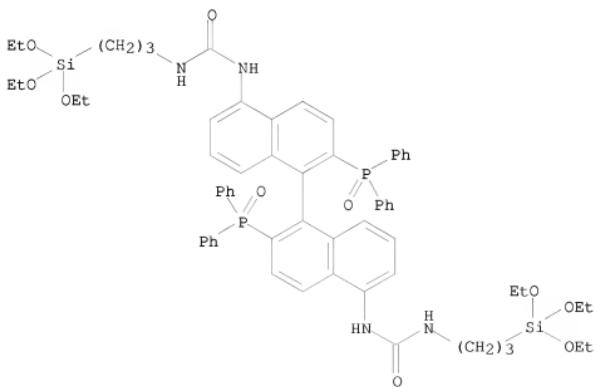
OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD  
 (5 CITINGS)  
 REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 3 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2008:383298 CAPLUS  
 DOCUMENT NUMBER: 150:191094  
 TITLE: BINAP-Ru and -Rh catalysts covalently immobilized on  
 silica and their repeated application in asymmetric  
 hydrogenation  
 AUTHOR(S): McDonald, Aidan R.; Mueller, Christian; Vogt, Dieter;  
 van Klink, Gerard P. M.; van Koten, Gerard  
 CORPORATE SOURCE: Organic Chemistry and Catalysis, Faculty of Science,  
 Utrecht University, Utrecht, 3584 CH, Neth.  
 SOURCE: Green Chemistry (2008), 10(4), 424-432  
 PUBLISHER: Royal Society of Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 150:191094  
 AB The facile immobilization of a chiral diphosphine ligand, BINAP, on a  
 silica (high pore volume, low surface area) is presented. The protected  
 ligand has been immobilized as a phosphine oxide and deprotected on the  
 surface to prevent side reactions of unprotected phosphines with surface  
 silanol groups. The resulting diphosphine ligand on silica was converted  
 to both rhodium and ruthenium complexes. The novel materials were  
 characterized using solid-state IR-DRIFT and 29Si and 31P CP-MAS NMR  
 techniques as well as elemental content measurements. Ruthenium and  
 rhodium catalyzed asym. hydrogenation of various enamides,  $\beta$ -keto  
 esters and aromatic ketones is presented using immobilized BINAP ligands.  
 The repeated use of the immobilized catalyst in five recycles demonstrates  
 homogeneous catalysis with heterogeneous catalysts, thus reducing solvent  
 waste, and loss of precious metal and or ligand.  
 IT 114317-09-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (BINAP-Ru and -Rh catalysts covalently immobilized on silica and their

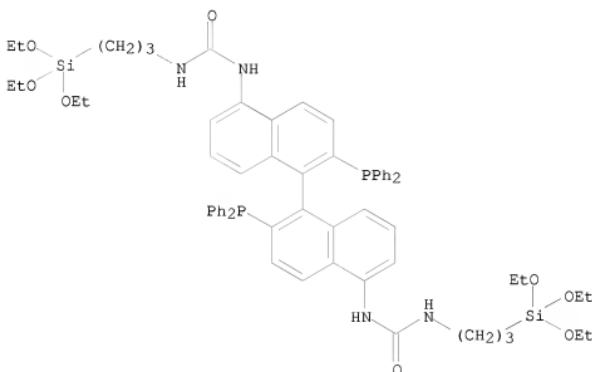
repeated application in asym. hydrogenation)  
 RN 114317-09-8 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphinyl)- (CA INDEX NAME)



IT 1108208-93-0DP, silica-supported 1108208-94-1DP,  
 silica-supported  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (BINAP-Ru and -Rh catalysts covalently immobilized on silica and their  
 repeated application in asym. hydrogenation)  
 RN 1108208-93-0 CAPLUS  
 CN Urea, N,N'-(1(R)-2,2'-bis(diphenylphosphinyl)[1,1'-binaphthalene]-5,5'-  
 diyl]bis[N'-(3-(triethoxysilyl)propyl]- (CA INDEX NAME)



RN 1108208-94-1 CAPLUS  
 CN Urea, N,N'-(1(R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[N'-(3-(triethoxysilyl)propyl)- (CA INDEX NAME)



OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD  
 (5 CITINGS)  
 REFERENCE COUNT: 83 THERE ARE 83 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2008:191778 CAPLUS  
 DOCUMENT NUMBER: 148:240545  
 TITLE: Easily recoverable polymers having  
 bis(diphenylphosphino)binaphthyl group useful as  
 addition reaction or reduction catalysts  
 INVENTOR(S): Shimada, Toyoshi; Takenaka, Naomi; Goshima, Gakuto;  
 Hosoi, Hiroyuki  
 PATENT ASSIGNEE(S): Kyoeisha Chemical Co., Ltd., Japan  
 SOURCE: PCT Int. Appl., 40pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2008018195	A1	20080214	WO 2007-JP54845	20070312
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN,			

MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS,  
 RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ,  
 UA, UG, US, UZ, VC, VN, ZA, ZM, ZW  
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
 IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF,  
 BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW,  
 GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,  
 BY, KG, KZ, MD, RU, TJ, TM  
 JP 4160111 B2 20081001 JP 2008-523612 20070312  
 EP 2050776 A1 20090422 EP 2007-738317 20070312  
 R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
 IS, IT, LI, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR,  
 AL, BA, HR, MK, RS  
 CN 101501099 A 20090805 CN 2007-80029452 20090209  
 IN 2009DN01105 A 20090515 IN 2009-DN1105 20090216  
 PRIORITY APPLN. INFO.: JP 2006-217013 A 20060809  
 WO 2007-JP54845 W 20070312

AB Title polymers with mol. weight 1,500-10,000 used as catalysts for asym. 1,4-addition reaction or asym. reduction reaction are prepared from racemic or optically active 2,2'-bis(diphenylphosphino)-1,1'-binaphthyl compound having its 5'-position substituted with the unsatd. end of one (meth)acryloyl of a compound having multiple (meth)acryloyls and another 2,2'-bis(diphenylphosphino)-1,1'-binaphthyl compound having its 5'-position substituted with the unsatd. end of another (meth)acryloyl of the compound having multiple (meth)acryloyls and the reduction catalysts comprise the polymers and transition metals. Thus, 1 mol 1,1'-(1,1'-binaphthalene)-2,2'-diylbis[1,1-diphenyl-phosphine] was oxidized with 20 mol 35% hydrogen peroxide, the resulting 1,1'-(1,1'-binaphthalene)-2,2'-diylbis[1,1-diphenyl-phosphine oxide] was reacted with bis(pyridine)iodonium tetrafluoroborate in trifluorosulfonic acid to give 1,1'-(1(R)-5,5'-diiodo[1,1'-binaphthalene]-2,2'-diyl)bis[1,1-diphenyl-phosphine oxide], 0.225 mmol of which was polymerized with 0.458 mmol Light Acrylate NP-A in the presence of 2.9 mg palladium acetate and 13.9 mg triphenylphosphine in 20 mL DMF at 130° for 48 h, reduced at 140° for 48 h in 30 mL xylene containing 2.2 mL trichlorosilane and 0.7 mL triethylamine to give a copolymer with Mw 4889, 50 mg of which was heated with 1,3-cyclohexenone 0.312, bis(η<sub>2</sub>-ethene)(2,4-pentanedionato-κO,κO')-rhodium 0.02, and phenylboronic acid 2.0 mmol at 100° for 13 h to give (R)-3-phenylcyclohexanone with purity 80% initially and 63% when recycled copolymer was used.

IT 1006052-68-1DP, reduced, complex with rhodium

RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(catalyst; easily recoverable polymers having bis(diphenylphosphino)binaphthyl group useful as addition reaction or reduction catalysts)

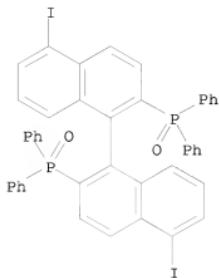
RN 1006052-68-1 CAPLUS

CN 2-Propenoic acid, 1,1'-(2,2-dimethyl-1,3-propanediyl) ester, polymer with 1,1'-(1(R)-5,5'-diiodo[1,1'-binaphthalene]-2,2'-diyl)bis[1,1-diphenylphosphine oxide] (CA INDEX NAME)

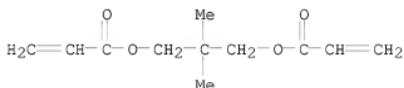
CM 1

CRN 871350-54-8

CMF C44 H30 I2 O2 P2



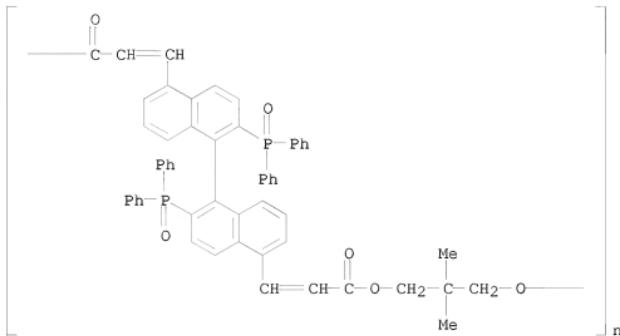
CM 2

CRN 2223-82-7  
CMF C11 H16 O4

IT 1005774-18-4DP, reduced, complex with rhodium  
 1005774-20-8DP, reduced 1006052-68-1P  
 1006052-76-1DP, reduced 1006052-79-4DP, reduced  
 1006052-82-9DP, reduced 1006052-85-2DP, reduced  
 1006052-88-5P 1006052-89-6P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (easily recoverable polymers having bis(diphenylphosphino)binaphthyl  
 group useful as addition reaction or reduction catalysts)

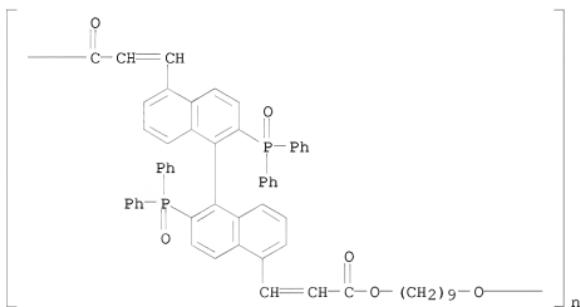
RN 1005774-18-4 CAPLUS

CN Poly[oxy(2,2-dimethyl-1,3-propanediyl)oxy(1-oxo-2-propene-1,3-diyl)][(1R)-  
 2,2'-bis(diphenylphosphinyl)[1,1'-binaphthalene]-5,5'-diyl](3-oxo-1-  
 propene-1,3-diyl)] (CA INDEX NAME)



RN 1005774-20-8 CAPLUS

CN Poly[oxy-1,9-nonanediyl]oxy[1-oxo-2-propene-1,3-diyl][(1R)-2,2'-bis(diphenylphosphinyl)[1,1'-binaphthalene]-5,5'-diyl](3-oxo-1-propene-1,3-diyl)] (CA INDEX NAME)



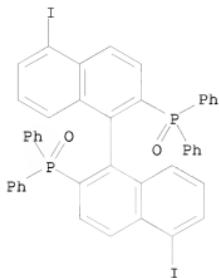
RN 1006052-68-1 CAPLUS

CN 2-Propenoic acid, 1,1'-(2,2-dimethyl-1,3-propanediyl) ester, polymer with 1,1'-(1R)-5,5'-diiodo[1,1'-binaphthalene]-2,2'-diyl]bis[1,1'-diphenylphosphine oxide] (CA INDEX NAME)

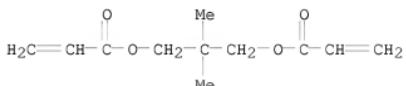
CM 1

CRN 871350-54-8

CMF C44 H30 I2 O2 P2



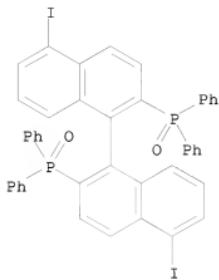
CM 2

CRN 2223-82-7  
CMF C11 H16 O4

RN 1006052-76-1 CAPLUS  
 CN 2-Propenoic acid, 1,1'-[ (octahydro-4,7-methano-1H-indene-5,?-diyl)bis(methylene)] ester, polymer with  
 1,1'-[ (1R)-5,5'-diiodo[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenylphosphine oxide] (CA INDEX NAME)

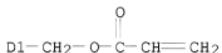
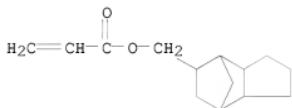
CM 1

CRN 871350-54-8  
CMF C44 H30 I2 O2 P2



CM 2

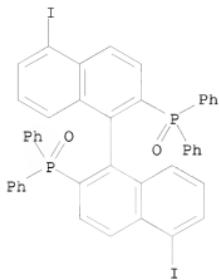
CRN 42594-17-2  
 CMF C18 H24 O4  
 CCI IDS



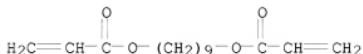
RN 1006052-79-4 CAPLUS  
 CN 2-Propenoic acid, 1,1'-(1,9-nanediyl) ester, polymer with  
 1,1'-(1(R)-5,5'-diiodo[1,1'-binaphthalene]-2,2'-diyl)bis[1,1-  
 diphenylphosphine oxide] (CA INDEX NAME)

CM 1

CRN 871350-54-8  
 CMF C44 H30 I2 O2 P2



CM 2

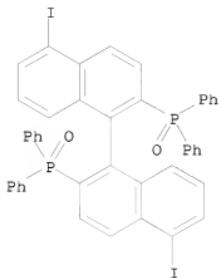
CRN 107481-28-7  
CMF C15 H24 O4

RN 1006052-82-9 CAPLUS

CN Phosphine oxide, 1,1'-(1R)-5,5'-diiodo[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl-, polymer with  $\alpha,\alpha'$ -(1-methylethylidene)di-4,1-phenylene]bis[ $\omega$ -[(1-oxo-2-propen-1-yl)oxylpoly(oxy-1,2-ethanediyl)] (CA INDEX NAME)

CM 1

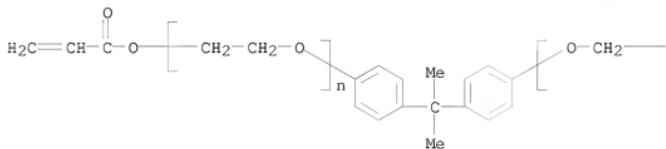
CRN 871350-54-8  
CMF C44 H30 I2 O2 P2



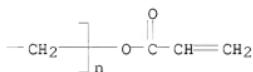
CM 2

CRN 64401-02-1  
 CMF (C<sub>2</sub> H<sub>4</sub> O)<sub>n</sub> (C<sub>2</sub> H<sub>4</sub> O)<sub>n</sub> C<sub>21</sub> H<sub>20</sub> O<sub>4</sub>  
 CCI PMS

PAGE 1-A



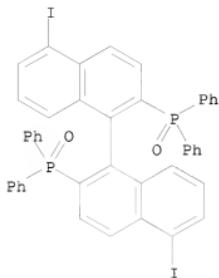
PAGE 1-B



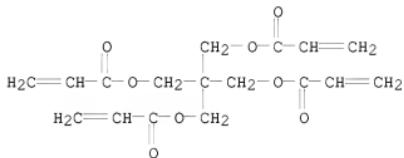
RN 1006052-85-2 CAPLUS  
 CN 2-Propenoic acid, 1,1'-[2,2-bis([(1-oxo-2-propenyl)oxy]methyl)-1,3-propanediyl] ester, polymer with 1,1'-(1R)-5,5'-diiodo[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenylphosphine oxide] (CA INDEX NAME)

CM 1

CRN 871350-54-8  
 CMF C<sub>44</sub> H<sub>30</sub> I<sub>2</sub> O<sub>2</sub> P<sub>2</sub>

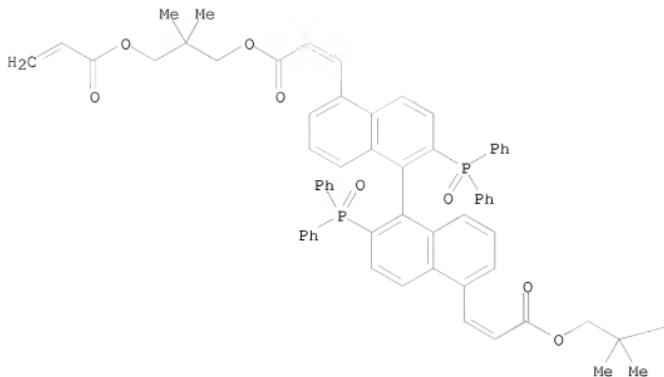


CM 2

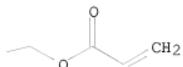
CRN 4986-89-4  
CMF C17 H20 O8

RN 1006052-88-5 CAPLUS  
 CN 2-Propenoic acid, 3,3'-[{(1R)-2,2'-bis(diphenylphosphinyl){1,1'-binaphthalene}-5,5'-diyl]bis-, 1,1'-bis[2,2-dimethyl-3-[(1-oxo-2-propen-1-yl)oxy]propyl] ester (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

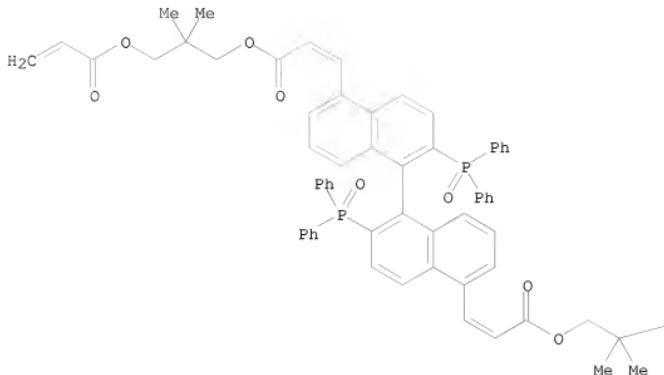


RN 1006052-89-6 CAPLUS  
 CN 2-Propenoic acid, 3,3'-(1R)-2,2'-bis(diphenylphosphinyl)(1,1'-binaphthalene)-5,5'-diyl]bis-, 1,1'-bis[2,2-dimethyl-3-(1-oxo-2-propen-1-yl)oxyl]propyl ester, homopolymer (CA INDEX NAME)

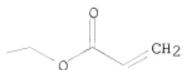
CM 1

CRN 1006052-88-5  
CME C66 H60 O10 P2

PAGE 1-A



PAGE 1-B

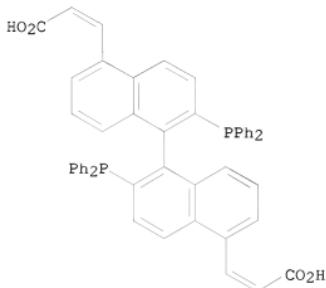


IT 1006052-74-9P  
RL: IMF (Industrial manufacture); MSC (Miscellaneous); PREP (Preparation)

(model compound for backbone; easily recoverable polymers having bis(diphenylphosphino)binaphthyl group useful as addition reaction or reduction catalysts)

RN 1006052-74-9 CAPLUS

CN 2-Propenoic acid, 3,3'-[{(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis- (CA INDEX NAME)

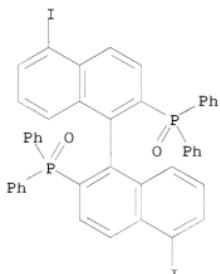


IT 871350-54-8P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(monomer; easily recoverable polymers having bis(diphenylphosphino)binaphthyl group useful as addition reaction or reduction catalysts)

RN 871350-54-8 CAPLUS

CN Phosphine oxide, 1,1'-[{(1R)-5,5'-diiodo[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

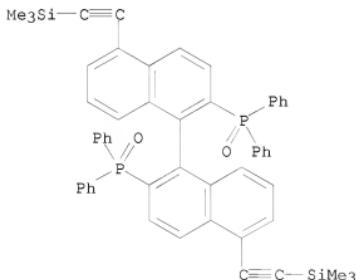


REFERENCE COUNT:

8

THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2007:1136646 CAPLUS  
 DOCUMENT NUMBER: 148:34059  
 TITLE: Preparation of functionalized aryl(diallyl)ethoxysilanes and their palladium-catalyzed coupling reactions giving sol-gel precursors  
 AUTHOR(S): Maegawa, Yoshifumi; Nagano, Toyohiro; Yabuno, Tatsuya; Nakagawa, Hiroki; Shimada, Toyoshi  
 CORPORATE SOURCE: Department of Chemical Engineering, Nara National College of Technology, 22 Yata-cho, Yamatokoriyama, Nara, 639-1080, Japan  
 SOURCE: Tetrahedron (2007), 63(46), 11467-11474  
 PUBLISHER: Elsevier Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 148:34059  
 AB A series of mol. building blocks containing allylsilyl groups, which can be incorporated into the appropriate sol-gel precursors as fragments, were prepared. The allylsilyl group is retained unchanged over the course of all reactions giving sol-gel precursors and behave as the synthetic equivalent of alkoxysilyl groups toward sol-gel polymerization, but are stable enough to allow purification by silica gel chromatog. These allylsilanes were successfully used as building blocks to construct functional sol-gel precursors via palladium-catalyzed coupling reactions.  
 IT 959611-94-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of functionalized aryl(diallyl)ethoxysilanes and their palladium-catalyzed coupling reactions giving sol-gel precursors)  
 RN 959611-94-0 CAPLUS  
 CN Phosphine oxide, 1,1'-(1S)-5,5'-bis[2-(trimethylsilyl)ethynyl][1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)



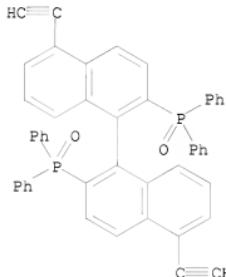
IT 959611-95-1P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

(Reactant or reagent)

(preparation of functionalized aryl(diallyl)ethoxysilanes and their palladium-catalyzed coupling reactions giving sol-gel precursors)

RN 959611-95-1 CAPLUS

CN Phosphine oxide, 1,1'-[{(1S)-5,5'-diethynyl[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)}



IT 959611-96-2P

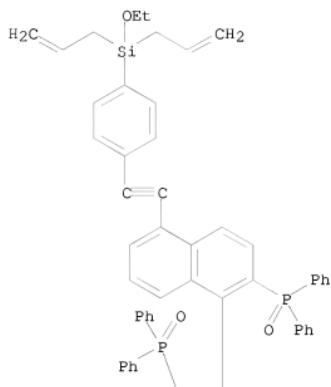
RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of functionalized aryl(diallyl)ethoxysilanes and their palladium-catalyzed coupling reactions giving sol-gel precursors)

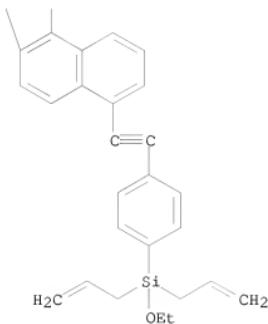
RN 959611-96-2 CAPLUS

CN Phosphine oxide, 1,1'-[{(1S)-5,5'-bis[2-[4-(ethoxydi-2-propen-1-ylsilyl)phenyl]ethynyl][1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



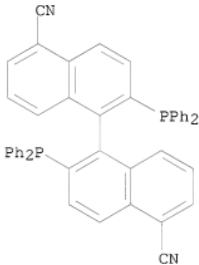
REFERENCE COUNT:

34

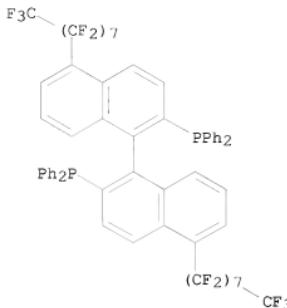
THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 6 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2007:382460 CAPLUS  
 DOCUMENT NUMBER: 148:379908

TITLE: New 5,5'-disubstituted BINAP derivatives: Syntheses and pressure and electronic effects in Rh asymmetric hydrogenation  
 AUTHOR(S): Alame, M.; Jahjah, M.; Berthod, M.; Lemaire, M.; Meille, V.; de Bellefon, C.  
 CORPORATE SOURCE: Laboratoire de Genie des Procedes Catalytiques, UMR 2214, CNRS-CPE Lyon, Villeurbanne, 69616, Fr.  
 SOURCE: Journal of Molecular Catalysis A: Chemical (2007), 268(1-2), 205-212  
 CODEN: JMCCF2; ISSN: 1381-1169  
 PUBLISHER: Elsevier B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 148:379908  
 AB A library of 5,5'-disubstituted BINAP derivs. were synthesized in good yield from optically pure BINAP and evaluated for the Rh-catalyzed homogeneous asym. hydrogenation of ( $\alpha$ )-acylaminoacrylate ester, with ee of up to 77% being obtained with the Ph derivative. The enantiomeric excess variation was followed for the 5,5'-substituents on the BINAP and for a range of pressure from 5 to 30 bar.  
 IT 681244-45-1 701935-25-3  
 RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
     (new 5,5'-disubstituted BINAP derivs. as ligands in the rhodium-catalyzed hydrogenation of unstd. amino acids)  
 RN 681244-45-1 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-dicarbonitrile, 2,2'-bis(diphenylphosphino)-, (1R)- (CA INDEX NAME)



RN 701935-25-3 CAPLUS  
 CN Phosphine, 1,1'-[(1R)-5,5'-bis(1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctyl){1,1'-binaphthalene}-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

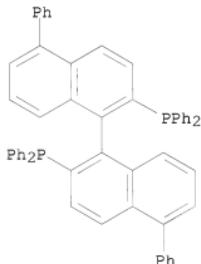


IT 930794-21-1P 1015011-80-9P 1015011-84-3P  
 1015011-88-7P

RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
 (new 5,5'-disubstituted BINAP derivs. as ligands in the  
 rhodium-catalyzed hydrogenation of unstd. amino acids)

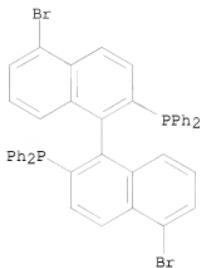
RN 930794-21-1 CAPLUS

CN Phosphine, 1,1'-(*(1R)-5,5'-diphenyl[1,1'-binaphthalene]-2,2'-diyl*)bis[1,1-diphenyl- (CA INDEX NAME)



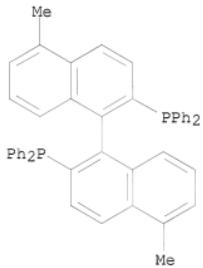
RN 1015011-80-9 CAPLUS

CN Phosphine, 1,1'-(*(1R)-5,5'-dibromo[1,1'-binaphthalene]-2,2'-diyl*)bis[1,1-diphenyl- (CA INDEX NAME)



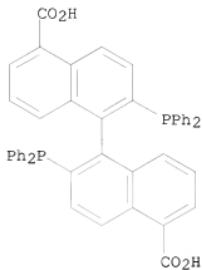
RN 1015011-84-3 CAPLUS

CN Phosphine, 1,1'-(1R)-5,5'-dimethyl[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

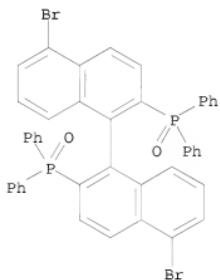


RN 1015011-88-7 CAPLUS

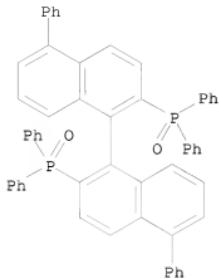
CN [1,1'-Binaphthalene]-5,5'-dicarboxylic acid, 2,2'-bis(diphenylphosphino)-, (1R)- (CA INDEX NAME)



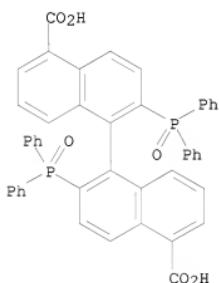
IT 681244-37-1P 930794-20-0P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (new 5,5'-disubstituted BINAP derivs. as ligands in the rhodium-catalyzed hydrogenation of unstd. amino acids)  
 RN 681244-37-1 CAPLUS  
 CN Phosphine oxide, 1,1'-(1R)-5,5'-dibromo[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)



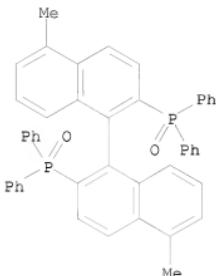
RN 930794-20-0 CAPLUS  
 CN Phosphine oxide, 1,1'-(1R)-5,5'-diphenyl[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)



IT 1015011-98-9P 1015012-02-8P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (new 5,5'-disubstituted BINAP derivs. as ligands in the  
 rhodium-catalyzed hydrogenation of unstd. amino acids)  
 RN 1015011-98-9 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-dicarboxylic acid,  
 2,2'-bis(diphenylphosphinyl)-, (1R)- (CA INDEX NAME)



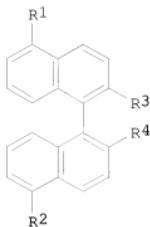
RN 1015012-02-8 CAPLUS  
 CN Phosphine oxide, 1,1'-[(1R)-5,5'-dimethyl[1,1'-binaphthalene]-2,2'-  
 diyl]bis[1,1-diphenyl- (CA INDEX NAME)



OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD  
 (6 CITINGS)  
 REFERENCE COUNT: 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 7 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2007:352054 CAPLUS  
 DOCUMENT NUMBER: 146:380115  
 TITLE: Preparation of binaphthyls as asymmetric ligands  
 INVENTOR(S): Shimada, Toyoshi; Kakiuchi, Kiyozo  
 PATENT ASSIGNEE(S): Nara Institute of Science and Technology, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 27pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007077022	A	20070329	JP 2005-262628	20050909
PRORITY APPLN. INFO.:			JP 2005-262628	20050909
OTHER SOURCE(S):	MARPAT	146:380115		
GI				



I

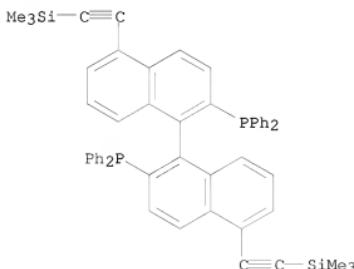
AB Binaphthyls I [R1, R2 = H, (un)substituted alkyl, alkenyl, alkynyl, aryl, silyl; R1 = R2 ≠ H; R3, R4 = POR52, PR52; R5 = (un)substituted Ph] are prepared by oxidation of 2,2'-bis(diphenylphosphino)-1,1'-binaphthyls, iodination of the resulting oxides with bis(pyridine)iodonium tetrafluoroborate (II), followed by cross-coupling of the obtained iodinated binaphthyls with transition metals. Thus, (R)-BINAP dioxide was iodinated with II, cross-coupled with trimethylsilylacetylene in the presence of CuI and PdCl<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>, and treated with LiAlH<sub>4</sub> to give (R)-I (R1 = R2 = C<sub>6</sub>H<sub>4</sub>-CH<sub>2</sub>-C<sub>6</sub>H<sub>4</sub>-CH<sub>2</sub>-C<sub>6</sub>H<sub>3</sub>-Me, R3 = R4 = PPh<sub>2</sub>) (III). 2-Cyclohexen-1-one was treated with III, PhB(OH)<sub>2</sub>, and Rh(acac)(C<sub>2</sub>H<sub>4</sub>)<sub>2</sub> to give 99% optically active 3-phenylcyclohexan-1-one with 97.3% ee.

IT 871350-62-8P

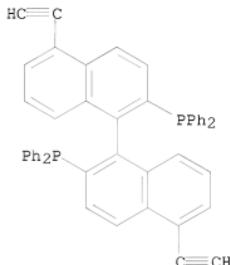
RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(preparation of binaphthyls as asym. ligands by cross-coupling of iodobinaphthyls)

RN 871350-62-8 CAPLUS

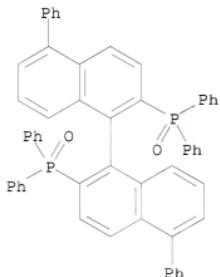
CN Phosphine, 1,1'-(1(R)-5,5'-bis[2-(trimethylsilyl)ethynyl]-[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)



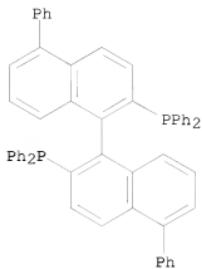
IT 871350-64-0P 930794-20-0P 930794-21-1P  
 930794-22-2P 930794-23-3P 930794-24-4P  
 930794-25-5P 930794-26-6P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);  
 USES (Uses)  
 (preparation of binaphthyls as asym. ligands by cross-coupling of  
 iodobinaphthyls)  
 RN 871350-64-0 CAPLUS  
 CN Phosphine, 1,1'-(<sup>(1R)</sup>-5,5'-diphenyl[1,1'-binaphthalene]-2,2'-diyl]bis[1,1'-  
 diphenyl- (CA INDEX NAME)



RN 930794-20-0 CAPLUS  
 CN Phosphine oxide, 1,1'-(<sup>(1R)</sup>-5,5'-diphenyl[1,1'-binaphthalene]-2,2'-  
 diyl]bis[1,1-diphenyl- (CA INDEX NAME)



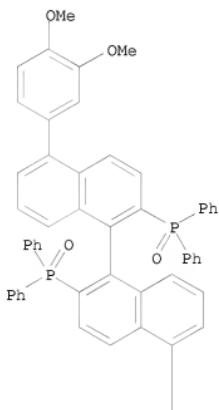
RN 930794-21-1 CAPLUS  
 CN Phosphine, 1,1'-(<sup>(1R)</sup>-5,5'-diphenyl[1,1'-binaphthalene]-2,2'-diyl]bis[1,1'-  
 diphenyl- (CA INDEX NAME)



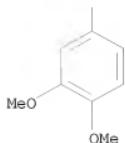
RN 930794-22-2 CAPLUS

CN Phosphine oxide, 1,1'-(1R)-5,5'-bis(3,4-dimethoxyphenyl){1,1'-binaphthalene}-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

PAGE 1-A

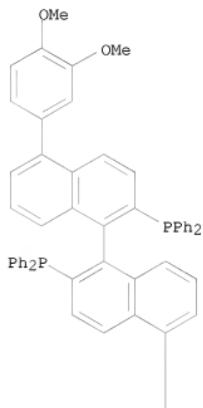


PAGE 2-A

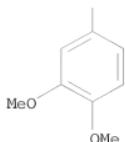


RN 930794-23-3 CAPLUS  
CN Phosphine, 1,1'-(1R)-5,5'-bis(3,4-dimethoxyphenyl)[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

PAGE 1-A



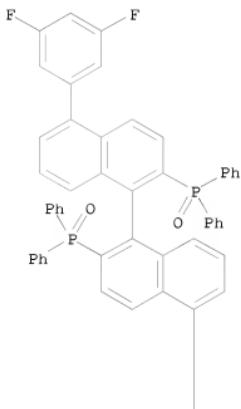
PAGE 2-A



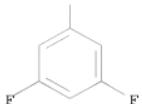
RN 930794-24-4 CAPLUS

CN Phosphine oxide, 1,1'-(1R)-5,5'-bis(3,5-difluorophenyl)[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

PAGE 1-A



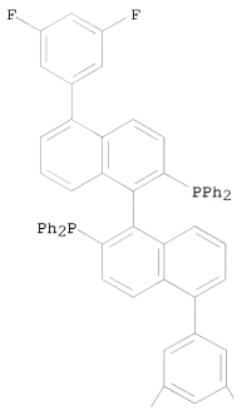
PAGE 2-A



RN 930794-25-5 CAPLUS

CN Phosphine, 1,1'-(1R)-5,5'-bis(3,5-difluorophenyl)[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

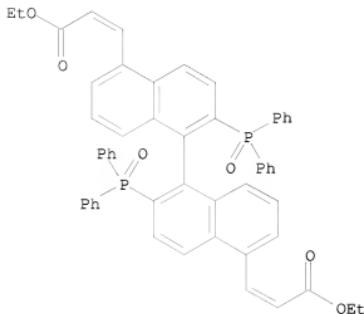
PAGE 1-A



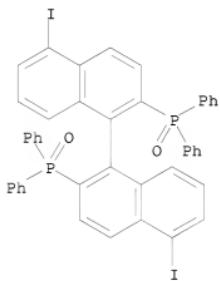
PAGE 2-A



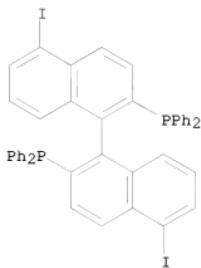
RN 930794-26-6 CAPLUS  
CN 2-Propenoic acid, 3,3'-(1R)-2,2'-bis(diphenylphosphinyl)[1,1'-binaphthalene]-5,5'-diyl]bis-, 1,1'-diethyl ester, (2E,2'E)- (CA INDEX NAME)



IT 871350-54-8P 871350-58-2P 871350-60-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation of binaphthyls as asym. ligands by cross-coupling of  
 iodobinaphthyls)  
 RN 871350-54-8 CAPLUS  
 CN Phosphine oxide, 1,1'-(1R)-5,5'-diiodo[1,1'-binaphthalene]-2,2'-  
 diyl]bis[1,1-diphenyl- (CA INDEX NAME)

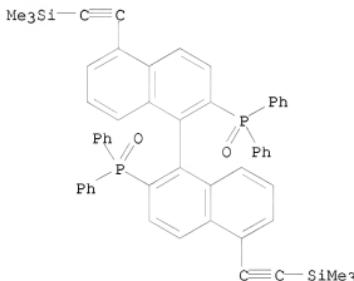


RN 871350-58-2 CAPLUS  
 CN Phosphine, 1,1'-(1R)-5,5'-diiodo[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-  
 diphenyl- (CA INDEX NAME)



RN 871350-60-6 CAPLUS

CN Phosphine oxide, 1,1'-(1R)-5,5'-bis[2-(trimethylsilyl)ethynyl][1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)



L3 ANSWER 8 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:235675 CAPLUS

DOCUMENT NUMBER: 146:482330

TITLE: A Highly Reusable Catalyst for Enantioselective Ketone Hydrogenation. Catalyst-Organic Frameworks by Alternating ROMP Assembly

AUTHOR(S): Ralph, Corbin K.; Bergens, Steven H.

CORPORATE SOURCE: Department of Chemistry, University of Alberta, Edmonton, AB, T6G 2G2, Can.

SOURCE: Organometallics (2007), 26(7), 1571-1574

PUBLISHER: CODEN: ORGND7; ISSN: 0276-7333

DOCUMENT TYPE: American Chemical Society

LANGUAGE: Journal

OTHER SOURCE(S): English

CASREACT 146:482330

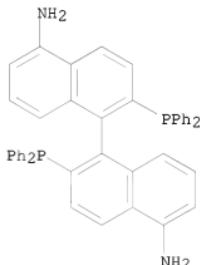
AB The alternating ROMP assembly of trans-RuCl<sub>2</sub>((R)-5,5'-dinorimido-BINAP)(Py)<sub>2</sub> (5) and COE using RuCl<sub>2</sub>(CHPh)(PCy<sub>3</sub>)<sub>2</sub> (7) as the catalyst resulted in an extended, three-dimensional catalyst-organic framework. The catalyst-organic framework was converted to contain Noyori-type active sites that were recycled for 25 times at low catalyst loadings without loss in enantioselectivity or activity and without detectable Ru leaching.

IT 244260-43-3, (R)-5,5'-Diamino-2,2'-bis(diphenylphosphino)-1,1'-binaphthyl

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reusable catalyst for enantioselective ketone hydrogenation made of alternating ROMP polymer frameworks)

RN 244260-43-3 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1R)-  
(CA INDEX NAME)

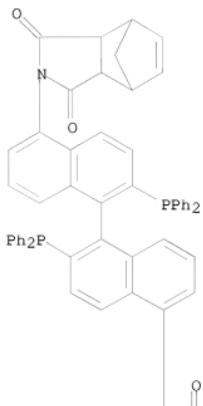


IT 935886-69-4P, (R)-5,5'-N-Bis(cis-5-norbornene-2,3-endo-dicarboximido)-2,2'-bis(diphenylphosphino)-1,1'-binaphthyl  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(reusable catalyst for enantioselective ketone hydrogenation made of alternating ROMP polymer frameworks)

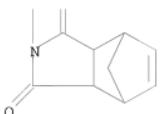
RN 935886-69-4 CAPLUS

CN 4,7-Methano-1H-isindole-1,3(2H)-dione,  
2,2'-(1(R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl)bis[3a,4,7,7a-tetrahydro-, (3aR,3'aR,4S,4'S,7R,7'aS,7'aS)- (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD  
 (5 CITINGS)  
 REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 9 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2007:230189 CAPLUS  
 DOCUMENT NUMBER: 146:462111  
 TITLE: Enantioselective Hydrogenation of Quinolines Catalyzed  
 by Ir(BINAP)-Cored Dendrimers: Dramatic Enhancement of  
 Catalytic Activity  
 AUTHOR(S): Wang, Zhi-Jian; Deng, Guo-Jun; Li, Yong; He, Yan-Mei;  
 Tang, Wei-Jun; Fan, Qing-Hua  
 CORPORATE SOURCE: Beijing National Laboratory for Molecular Sciences,  
 Center for Chemical Biology, Institute of Chemistry,  
 Chinese Academy of Sciences, Beijing, 100080, Peop.  
 Rep. China  
 SOURCE: Organic Letters (2007), 9(7), 1243-1246

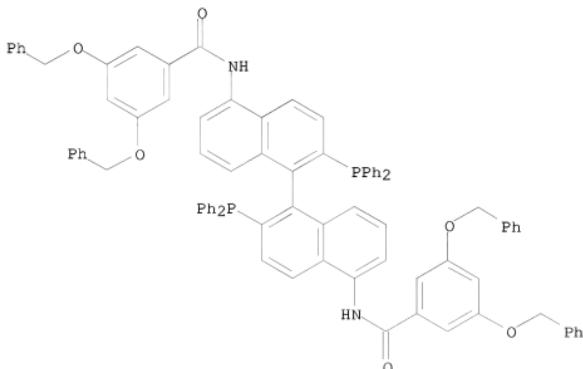
CODEN: ORLEF7; ISSN: 1523-7060  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 146:462111  
 GI



AB The asym. hydrogenation of quinolines, e.g. I, catalyzed by chiral dendritic catalysts derived from BINAP gave the corresponding products, e.g. II, with high enantioselectivities (up to 93%), excellent catalytic activities (TOF up to 3450 h<sup>-1</sup>), and productivities (TON up to 43,000). In addition, the third-generation catalyst could be recovered by precipitation and filtration and reused at least six times with similar enantioselectivity.

IT 935536-82-6P 935536-83-7P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);  
 USES (Uses)  
 (asym. synthesis of tetrahydroquinolines via Ir(BINAP)-cored dendrimer-catalyzed stereoselective hydrogenation of quinolines)

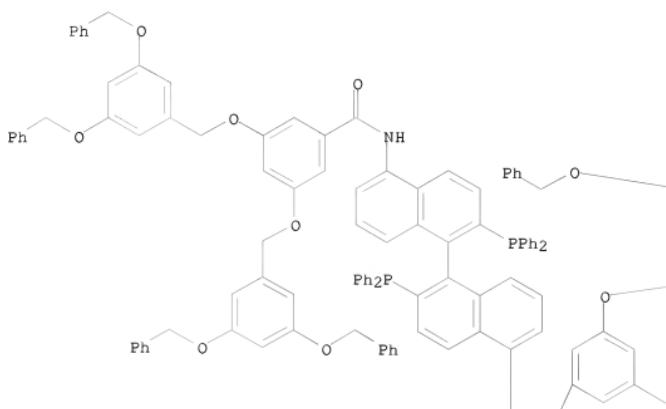
RN 935536-82-6 CAPLUS  
 CN Benzamide, N,N'-(1S)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis(phenylmethoxy)- (CA INDEX NAME)



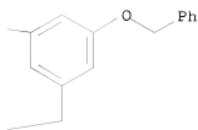
RN 935536-83-7 CAPLUS  
 CN Benzamide, N,N'-(1S)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-

diyl]bis[3,5-bis[(3,5-bis(phenylmethoxy)phenyl)methoxy]- (CA INDEX NAME)

PAGE 1-A



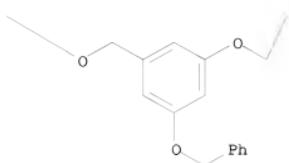
PAGE 1-B



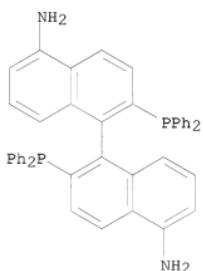
PAGE 2-A



PAGE 2-B



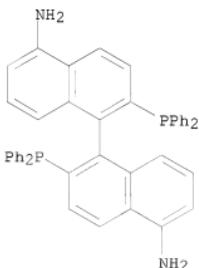
IT 244260-42-2  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of dendritic BINAP ligands via amidation of Frechet-type  
 polyaryl ether dendrons with diamino BINAP)  
 RN 244260-42-2 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bi(diphenylphosphino)-, (1S)-  
 (CA INDEX NAME)



OS.CITING REF COUNT: 40 THERE ARE 40 CAPLUS RECORDS THAT CITE THIS  
 RECORD (41 CITINGS)  
 REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 10 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2006:1183926 CAPLUS

DOCUMENT NUMBER: 147:343481  
 TITLE: Polyethylene glycol as an environmentally friendly and recyclable reaction medium for enantioselective hydrogenation  
 AUTHOR(S): Zhou, Hai-Feng; Fan, Qing-Hua; Tang, Wei-Jun; Xu, Li-Jin; He, Yan-Mei; Deng, Guo-Jun; Zhao, Li-Wen; Gu, Lian-Quan; Chan, Albert S. C.  
 CORPORATE SOURCE: School of Chemistry and Chemical Engineering, Sun Yat-Sen University, Guangzhou, 510275, Peop. Rep. China  
 SOURCE: Advanced Synthesis & Catalysis (2006), 348(15), 2172-2182  
 PUBLISHER: CODEN: ASCAF7; ISSN: 1615-4150 Wiley-VCH Verlag GmbH & Co. KGaA  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 147:343481  
 AB Polyethylene glycol (PEG) was found to be an inexpensive, non-toxic and recyclable reaction medium for ruthenium- and rhodium-catalyzed asym. hydrogenation of 2-arylacrylic acids (Ru-catalyzed C=C bond reduction), enamides (Rh-catalyzed C=C bond reduction),  $\beta$ -keto esters and simple aromatic ketones (Ru-catalyzed C=O bond reduction). In all cases, high catalytic activities and enantioselectivities have been achieved, which are comparable to those obtained in conventional organic solvent systems. The Ru and Rh catalysts prepared with com. available chiral diphosphine ligands could be readily recycled by simple extraction, as in the case of ionic liqs., and reused up to nine times without obvious loss of catalytic activity and enantioselectivity. The reduced products were obtained from the exts. in high isolated yields. These results indicate that PEGs as new reaction media are attractive alternatives to room temperature ionic liqs.  
 IT 244260-42-2 308795-87-1  
 RL: CAT (Catalyst use); USES (Uses)  
 (polyethylene glycol as an environmentally friendly and recyclable reaction medium for enantioselective hydrogenation)  
 RN 244260-42-2 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1S)- (CA INDEX NAME)



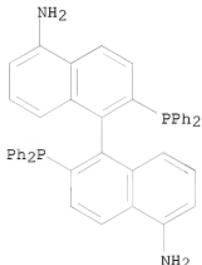
RN 308795-87-1 CAPLUS

CN 1,4-Benzenedicarbonyl dichloride, polymer with  
(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine and  
 $\alpha$ -hydro- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl) (CA INDEX NAME)

CM 1

CRN 244260-43-3

CMF C44 H34 N2 P2

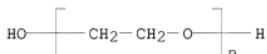


CM 2

CRN 25322-68-3

CMF (C2 H4 O)n H2 O

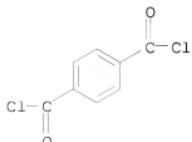
CCI PMS



CM 3

CRN 100-20-9

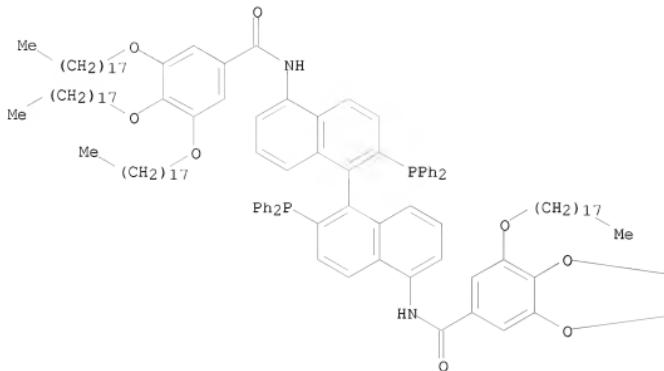
CMF C8 H4 Cl2 O2



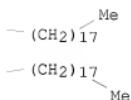
OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD  
(8 CITINGS)  
REFERENCE COUNT: 126 THERE ARE 126 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L3 ANSWER 11 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
ACCESSION NUMBER: 2006:184010 CAPLUS  
DOCUMENT NUMBER: 144:432506  
TITLE: Thermomorphic System with Non-Fluorous Phase-Tagged  
Ru(BINAP) Catalyst: Facile Liquid/Solid Catalyst  
Separation and Application in Asymmetric Hydrogenation  
Huang, Yi-Yong; He, Yan-Mei; Zhou, Hai-Feng; Wu, Lei;  
Li, Bao-Lin; Fan, Qing-Hua  
AUTHOR(S):  
CORPORATE SOURCE: Laboratory of Chemical Biology, Institute of  
Chemistry, Chinese Academy of Sciences, Beijing,  
100080, Peop. Rep. China  
SOURCE: Journal of Organic Chemistry (2006), 71(7), 2874-2877  
CODEN: JOCEAH; ISSN: 0022-3263  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 144:432506  
AB A thermomorphic BINAP derivative was prepared from (S)-5,5'-diamino BINAP and  
3,4,5-[Me(CH<sub>2</sub>)<sup>17</sup>O]3C<sub>6</sub>H<sub>2</sub>CO<sub>2</sub>H and applied to Ru-catalyzed asym.  
hydrogenation of  $\beta$ -keto esters under homogeneous conditions in 3:1  
EtOH-1,4-dioxane at 60 °C with enantioselectivity  $\leq$  98%.  
The Ru catalyst was easily recovered by simple cooling and precipitation and  
could  
be used for at least four cycles without any loss of enantioselectivity.  
IT 885315-09-3P  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);  
USES (Uses)  
(thermomorphic Ru(BINAP) catalyst for asym. hydrogenation)  
RN 885315-09-3 CAPLUS  
CN Benzamide, N,N'-(*(1S)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl*)*bis[3,4,5-tris(octadecyloxy)-* (9CI) (CA INDEX NAME)

PAGE 1-A

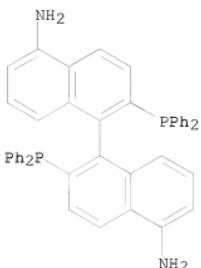


PAGE 1-B



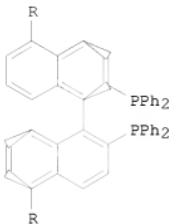
IT 244260-42-2, (S)-5,5'-Diamino-2,2'-bis  
(diphenylphosphino)-1,1'-binaphthol  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(thermomorphic Ru(BINAP) catalyst for asym. hydrogenation)  
RN 244260-42-2 CAPLUS  
CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1S)-

(CA INDEX NAME)



OS.CITING REF COUNT: 13 THERE ARE 13 CAPLUS RECORDS THAT CITE THIS RECORD (14 CITINGS)  
REFERENCE COUNT: 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 12 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
ACCESSION NUMBER: 2005:1146696 CAPLUS  
DOCUMENT NUMBER: 144:51305  
TITLE: Facile preparation of a new BINAP-based building block, 5,5'-diiodoBINAP, and its synthetic application  
AUTHOR(S): Shimada, Toyoshi; Suda, Masahiko; Nagano, Toyohiro;  
Kakiuchi, Kiyomi  
CORPORATE SOURCE: Department of Chemical Engineering, Nara National  
College of Technology, Nara, 639-1080, Japan  
SOURCE: Journal of Organic Chemistry (2005), 70(24),  
10178-10181  
PUBLISHER: CODEN: JOCCEAH; ISSN: 0022-3263  
DOCUMENT TYPE: American Chemical Society  
Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 144:51305  
GI

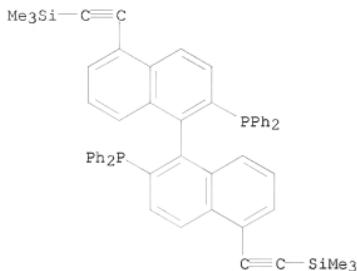


AB Nonracemic bis(diphenylphosphino)binaphthylidiphosphines I ( $R = I$ ,  $Me_3SiC.tplbond.C$ ,  $HC.tplbond.C$ ) are prepared chemoselectively using a chemo- and regioselective iodination of (R)-BINAP  $P,P'$ -dioxide with bis(pyridine)iodonium tetrafluoroborate as the key step. Treatment of (R)-BINAP dioxide with 3 equivalent of bis(pyridine)iodonium tetrafluoroborate at 25° for 20 h gives the dioxide of I ( $R = I$ ) in 92% yield with no formation of regioisomers; reaction of (R)-BINAP dioxide with 2 equivalent of bis(pyridine)iodonium tetrafluoroborate for at -30° gives 5-iodo-2,2'-bis(diphenylphosphoryl)-1,1'-binaphthyl in 15% yield because of difficulty in separating the monoiodo compound from starting material. Deoxygenation of the dioxide of I ( $R = I$ ) with trichlorosilane gives I ( $R = I$ ); Sonogashira coupling of the dioxide of I ( $R = I$ ) with trimethylsilylacetylene followed by deoxygenation with Me triflate and lithium aluminum hydride gives I ( $R = Me_3SiC.tplbond.C$ ), and cleavage of the silyl groups with tetrabutylammonium fluoride yields I ( $R = HC.tplbond.C$ ). Enantioselective rhodium-catalyzed addition of phenylboronic acid to 2-cyclohexen-1-one in the presence of either BINAP or 5,5'-disubstituted binaphthylidiphosphines yields nonracemic 3-phenylcyclohexanone in 97-99% yields and in 97% ee; while I ( $R = I$ ,  $Me_3SiC.tplbond.C$ ) provide 3-phenylcyclohexanone with similar yields and enantioselectivities to those obtained using (R)-BINAP, reaction in the presence of I ( $R = HC.tplbond.C$ ) leads to no product.

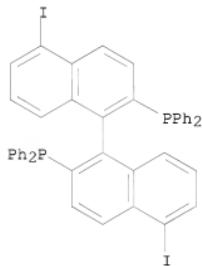
IT 871350-62-8P  
 RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
 (asym. rhodium-catalyzed addition of phenylboronic acid to cyclohexenone using binaphthylidiphosphines as chiral ligands)

RN 871350-62-8 CAPLUS

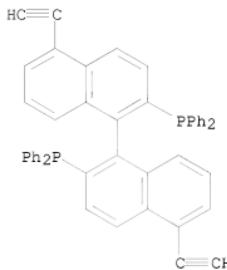
CN Phosphine, 1,1'-( $(1R)-5,5'$ -bis[2-(trimethylsilyl)ethynyl][1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)



IT 871350-58-2P, 5,5'-Diodo-(R)-BINAP 871350-64-0P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);  
 USES (Uses)  
 (asym. rhodium-catalyzed addition of phenylboronic acid to cyclohexenone  
 using binaphthylidiphosphines as chiral ligands)  
 RN 871350-58-2 CAPLUS  
 CN Phosphine, 1,1'-(1R)-5,5'-diiodo[1,1'-binaphthalene]-2,2'-diyl]bis[1,1'-  
 diphenyl- (CA INDEX NAME)



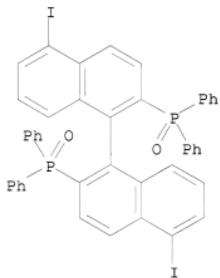
RN 871350-64-0 CAPLUS  
 CN Phosphine, 1,1'-(1R)-5,5'-diethynyl[1,1'-binaphthalene]-2,2'-diyl]bis[1,1'-  
 diphenyl- (CA INDEX NAME)



IT 871350-54-8P, 5,5'-Diiodo-(R)-BINAP dioxide  
 871350-60-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (asym. rhodium-catalyzed addition of phenylboronic acid to cyclohexenone using binaphthylidiphosphines as chiral ligands)

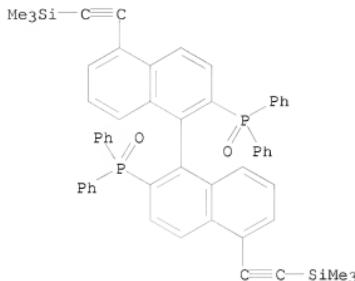
RN 871350-54-8 CAPLUS

CN Phosphine oxide, 1,1'-(1R)-5,5'-diiodo[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)



RN 871350-60-6 CAPLUS

CN Phosphine oxide, 1,1'-(1R)-5,5'-bis[2-(trimethylsilyl)ethynyl][1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

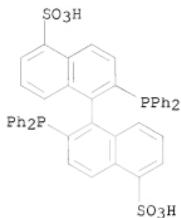


OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS RECORD (14 CITINGS)  
 REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 13 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2005:1020733 CAPLUS  
 DOCUMENT NUMBER: 143:306189  
 TITLE: Preparation of pyridinecarboxamides with recyclable catalysts and without the use of halogenation agents  
 INVENTOR(S): Shimazu, Hidekata; Tamashima, Tomoyuki  
 PATENT ASSIGNEE(S): Koei Chemical Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005255544	A	20050922	JP 2004-65682	20040309
PRIORITY APPLN. INFO.:				
AB Pyridinecarboxamides are prepared by isomerization of pyridinealdoximes in multiphase solvent mixts. in the presence of (A) mixts. of hydrophilic phosphines and transition metals, or (B) water-soluble complexes comprising the phosphines and metals. Thus, 4-pyridinealdoxime was refluxed with sulfonated BINAP and RuCl <sub>2</sub> (cod) in 1-butyl-4-methylimidazolium PF <sub>6</sub> salt and C6H <sub>6</sub> for 24 h, then the ionic liquid was recovered, which was used in the same reaction 4 more times. Total yield of 4-pyridinecarboxamide was 94.5%.				
IT 864956-92-3P, Disodium 2,2'-bis(diphenylphosphino)-[1,1'-binaphthalene]-5,5'-disulfonate				
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)				
(preparation of pyridinecarboxamides from pyridinealdoximes with recyclable catalysts in multiphase solvent mixts.)				
RN 864956-92-3 CAPLUS				

CN [1,1'-Binaphthalene]-5,5'-disulfonic acid, 2,2'-bis(diphenylphosphino)-, sodium salt (1:2) (CA INDEX NAME)



●2 Na

L3 ANSWER 14 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
ACCESSION NUMBER: 2004:988324 CAPLUS

DOCUMENT NUMBER: 142:430342

TITLE: Dendronized poly(Ru-BINAP) complexes: Highly effective and easily recyclable catalysts for asymmetric hydrogenation

AUTHOR(S): Deng, Guo-Jun; Yi, Bing; Huang, Yi-Yong; Tang, Wei-Jun; He, Yan-Mei; Fan, Qing-Hua

CORPORATE SOURCE: Laboratory of Chemical Biology, Center for Molecular Science, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China

SOURCE: Advanced Synthesis & Catalysis (2004), 346(12), 1440-1444

PUBLISHER: CODEN: ASCAF7; ISSN: 1615-4150  
Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 142:430342

AB A new kind of dendronized polymeric chiral BINAP ligands has been synthesized and applied to the Ru-catalyzed asym. hydrogenation of simple aryl ketones and 2-arylacrylic acids. These dendronized poly(Ru-BINAP) catalysts exhibited high catalytic activity and enantioselectivity, very similar to those obtained with the corresponding parent Ru(BINAP) and the Ru(BINAP)-cored dendrimers. It was found that the pendant dendrons had a major impact on the solubility and the catalytic properties of the polymeric ligands. These polymeric catalysts could be easily recovered from the reaction solution by using solvent precipitation, and the reused catalyst showed no

loss of activity or enantioselectivity.

IT 850552-65-7P 850552-66-8P 850645-52-2P

850645-53-3P

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);

USES (Uses)

(preparation of dendronized poly(ruthenium-BINAP) complexes as highly

effective and easily recyclable catalysts for asym. hydrogenation of aryl ketones and arylacrylic acids)

RN 850552-65-7 CAPLUS

CN Poly[iminocarbonyl[5-[[3,5-bis[[3,5-bis(phenylmethoxy)phenyl]methoxy]phenyl]methoxy]-1,3-phenylene]carbonylimino[(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

RN 850552-66-8 CAPLUS

CN Poly[iminocarbonyl[5-[[3,5-bis[[3-[[3,5-bis(phenylmethoxy)phenyl]methoxy]phenyl]methoxy]-5-(phenylmethoxy)phenyl]methoxy]phenyl]methoxy]-1,3-phenylene]carbonylimino[(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

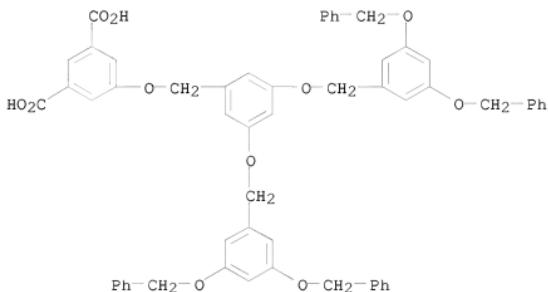
\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

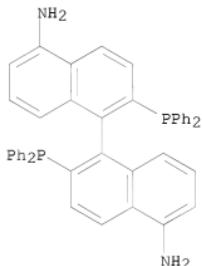
RN 850645-52-2 CAPLUS

CN 1,3-Benzenedicarboxylic acid, 5-[[3,5-bis[[3,5-bis(phenylmethoxy)phenyl]methoxy]phenyl]methoxy]-, polymer with (1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 850552-64-6  
CMF C57 H48 O11

CM 2

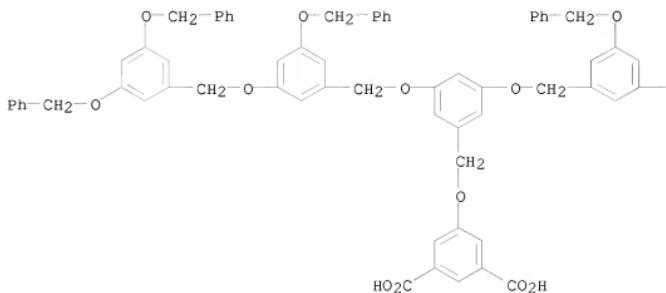
CRN 244260-43-3  
CMF C44 H34 N2 P2

RN 850645-53-3 CAPLUS  
 CN 1,3-Benzenedicarboxylic acid, 5-[{3,5-bis[{3-[{3,5-bis(phenylmethoxy)phenyl]methoxy}-5-(phenylmethoxy)phenyl]methoxy}phenyl]methoxy]-, polymer with (1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine (9CI) (CA INDEX NAME)

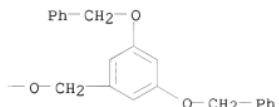
CM 1

CRN 850552-63-5  
CMF C85 H72 015

PAGE 1-A

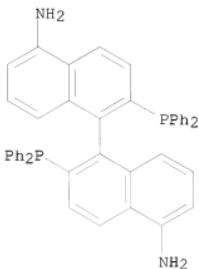


PAGE 1-B



CM 2

CRN 244260-43-3  
CMF C44 H34 N2 P2

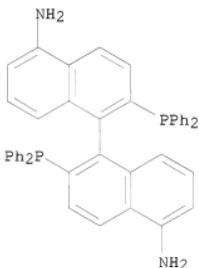


IT 244260-43-3

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of dendronized poly(ruthenium-BINAP) complexes as highly effective and easily recyclable catalysts for asym. hydrogenation of aryl ketones and arylacrylic acids)

RN 244260-43-3 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1R)-  
 (CA INDEX NAME)



OS.CITING REF COUNT: 22 THERE ARE 22 CAPLUS RECORDS THAT CITE THIS RECORD (23 CITINGS)

REFERENCE COUNT: 60 THERE ARE 60 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 15 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:884316 CAPLUS

DOCUMENT NUMBER: 143:153509

TITLE: Chiral phosphine ligand of dendritic molecule and its application

INVENTOR(S): Fan, Qinghua; Deng, Guojun; Chen, Xiaomin

PATENT ASSIGNEE(S): Institute of Chemistry, Chinese Academy of Sciences,

SOURCE: Peop. Rep. China  
 Faming Zhanli Shenqing Gongkai Shuomingshu, 17 pp.  
 DOCUMENT TYPE: CODEN: CNXXEV  
 Patent  
 LANGUAGE: Chinese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1465608	A	20040107	CN 2002-124391	20020621
CN 100537636	C	20090909		
PRIORITY APPLN. INFO.:			CN 2002-124391	20020621

OTHER SOURCE(S): CASREACT 143:153509

AB The chiral phosphine ligand of dendritic mol. is prepared by condensation reaction of dendritic mol. synthon with chiral phosphine compound through the linkage of amide group, ester group, or ureido. There are reactive groups (such as carboxy, amino, hydroxy, or isocyanate ester) at the end and alkyl at outer layer of the dendritic mol. synthon. The chiral phosphine compound is 5,5'-diamino-2,2'-bis(diphenylphosphino)-1,1'-binaphthalene, 3,4-bis(diphenylphosphino)pyrrolidine, 4-diphenylphosphino-2-diphenylphosphinomethylpyrrolidine. The chiral phosphine ligand may be used in asym. hydrogenation of alpha-unsatd. aromatic carboxylic acid and alpha-dehydroamino acid.

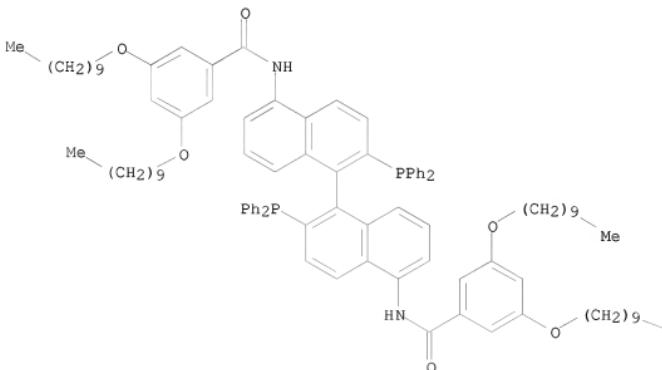
IT 483985-21-3P

RL: IMF (Industrial manufacture); PREP (Preparation)  
(for synthesis of chiral phosphine ligand of dendritic mol.)

RN 483985-21-3 CAPLUS

CN Benzanide, N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis(decyloxy)- (9CI) (CA INDEX NAME)

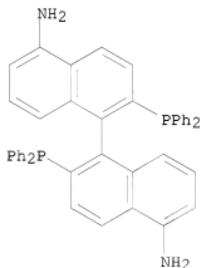
PAGE 1-A



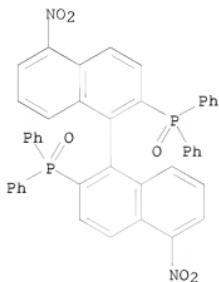
PAGE 1-B

- Me

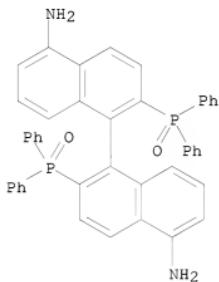
IT 244260-43-3P 845892-20-8P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (for synthesis of chiral phosphine ligand of dendritic mol.)  
 RN 244260-43-3 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1R)-  
 (CA INDEX NAME)



RN 845892-20-8 CAPLUS  
 CN Phosphine oxide, [(1R)-5,5'-dinitro[1,1'-binaphthalene]-2,2'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)

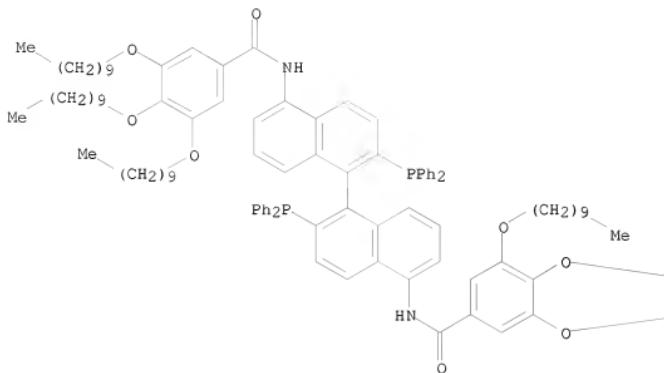


IT 114317-09-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (for synthesis of chiral phosphine ligand of dendritic mol.)  
 RN 114317-09-8 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphinyl)- (CA  
 INDEX NAME)

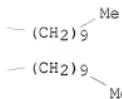


IT 471863-91-9P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (synthesis of chiral phosphine ligand of dendritic mol.)  
 RN 471863-91-9 CAPLUS  
 CN Benzamide, N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,4,5-tris(decyloxy)- (9CI) (CA INDEX NAME)

PAGE 1-A



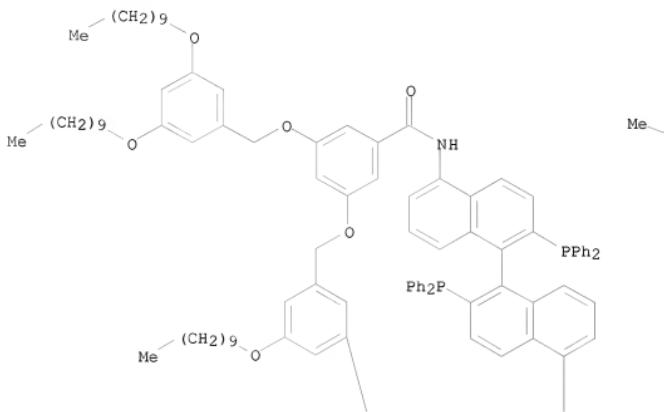
PAGE 1-B



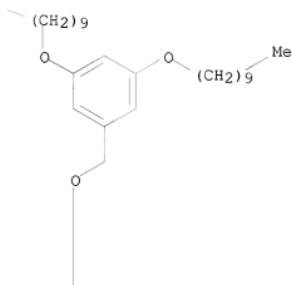
IT 483985-23-5P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)  
(synthesis of chiral phosphine ligand of dendritic mol.)  
RN 483985-23-5 CAPLUS  
CN Benzamide, N,N'-(1(R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-

diyl]bis[3,5-bis[(3,5-bis(decyloxy)phenyl)methoxy]- (9CI) (CA INDEX NAME)

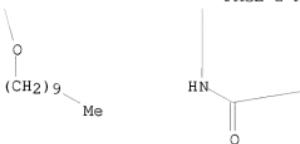
PAGE 1-A



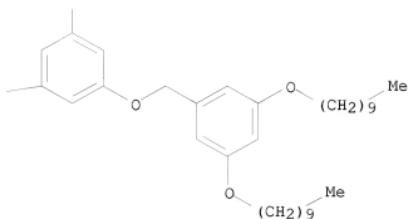
PAGE 1-B



PAGE 2-A



PAGE 2-B



L3 ANSWER 16 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:762978 CAPLUS

DOCUMENT NUMBER: 142:261284

TITLE: Improved synthesis of 5,5-diamino BINAP and application to asymmetric hydrogenation

AUTHOR(S): Huang, Yi-Yong; Deng, Guo-Jun; Wang, Xia-Yu; He, Yan-Mei; Fan, Qing-Hua

CORPORATE SOURCE: College of Chemistry, Xiangtan University, Xiangtan, 411105, Peop. Rep. China

SOURCE: Chinese Journal of Chemistry (2004), 22(9), 891-893 CODEN: CJOCEV; ISSN: 1001-604X

PUBLISHER: Science Press

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 142:261284

AB 5,5-Diamino BINAP has been synthesized via three steps using BINAPO as starting material with high reaction yield. The present method needed only a stoichiometric quantity of nitric acid in the step of nitration of BINAPO, giving almost quant. reaction yield. Based on 5,5-diamino BINAP, three other new BINAP derivs. have been synthesized. These modified BINAP ligands showed better catalytic properties as compared to BINAP itself in the asym. hydrogenation of 2-(6-methoxy-2-naphthyl)acrylic acid.

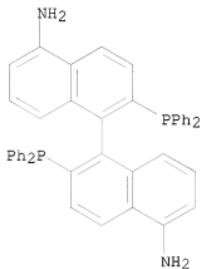
IT 244260-43-3P 566932-78-3P 845891-02-3P  
845891-04-5P

RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(improved synthesis of 5,5-diamino BINAP and application to asym.  
hydrogenation of 2-(6-methoxy-2-naphthyl)acrylic acid)

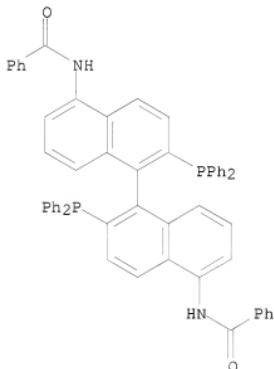
RN 244260-43-3 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1R)-  
(CA INDEX NAME)



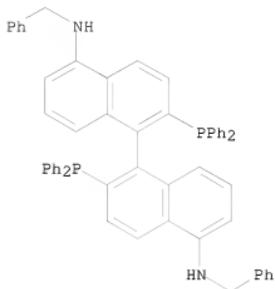
RN 566932-78-3 CAPLUS

CN Benzamide, N,N'-[{(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl}bis- (9CI) (CA INDEX NAME)



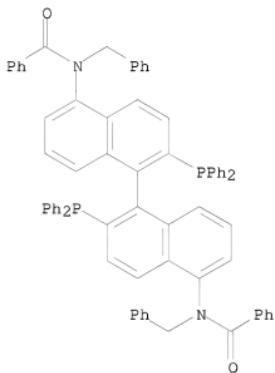
RN 845891-02-3 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-diamine,  
2,2'-bis(diphenylphosphino)-N,N'-bis(phenylmethyl)-, (1R)- (9CI) (CA  
INDEX NAME)



RN 845891-04-5 CAPLUS

CN Benzamide, N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[N-(phenylmethyl)- (9CI) (CA INDEX NAME)

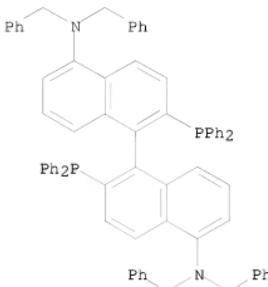


IT 845891-07-8P

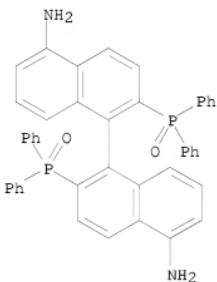
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);  
USES (Uses)(improved synthesis of 5,5-diamino BINAP and application to asym.  
hydrogenation of 2-(6-methoxy-2-naphthyl)acrylic acid)

RN 845891-07-8 CAPLUS

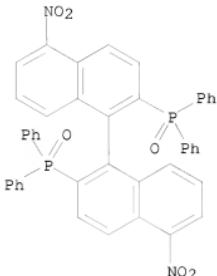
CN [1,1'-Binaphthalene]-5,5'-diamine,  
2,2'-bis(diphenylphosphino)-N,N,N',N'-tetrakis(phenylmethyl)-, (1R)- (9CI)  
(CA INDEX NAME)



IT 114317-09-8P 845892-20-8P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (improved synthesis of 5,5-diamino BINAP and application to asym.  
 hydrogenation of 2-(6-methoxy-2-naphthyl)acrylic acid)  
 RN 114317-09-8 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphinyl)- (CA INDEX NAME)



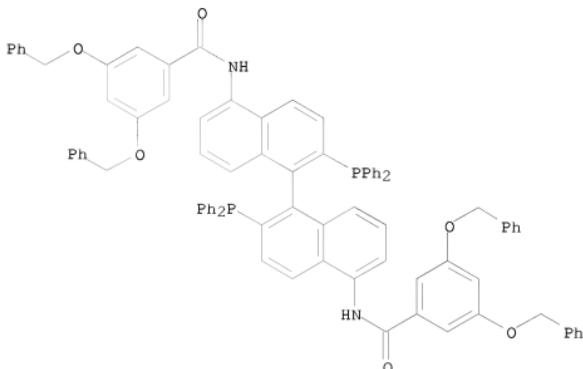
RN 845892-20-8 CAPLUS  
 CN Phosphine oxide, [(1R)-5,5'-dinitro[1,1'-binaphthalene]-2,2'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD  
 (4 CITINGS)  
 REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

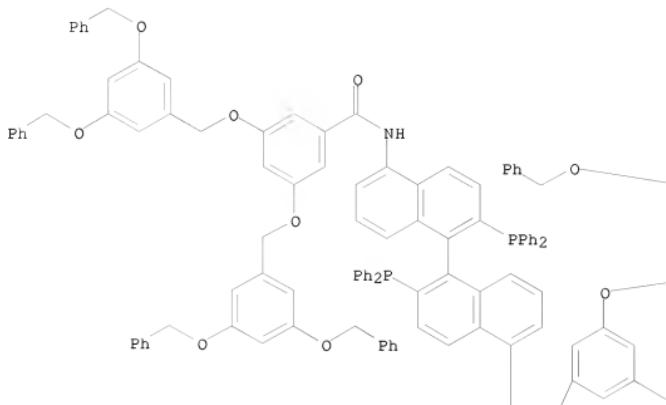
L3 ANSWER 17 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2004:733165 CAPLUS  
 DOCUMENT NUMBER: 141:401500  
 TITLE: Supramolecular assembly of a series of chiral  
 dendrimers in interfacial films  
 AUTHOR(S): Yuan, Jing; Deng, Guojun; Fan, Qinghua; Liu, Minghua  
 CORPORATE SOURCE: CAS Key Laboratory of Colloid and Interface Science,  
 Center for Molecular Science, Institute of Chemistry,  
 The Chinese Academy of Sciences, Beijing, 100080,  
 Peop. Rep. China  
 SOURCE: Thin Solid Films (2004), 466(1-2), 295-302  
 PUBLISHER: Elsevier B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Supramol. assembly and interfacial properties of a series of novel  
 binaphthyl containing dendrimers from generation 1 through generation 4 have  
 been investigated at the air/water interface and in solid substrates. Due  
 to the lack of either long alkyl chains or strong hydrophilic groups, the  
 dendrimer mols. tend to aggregate together to form stable two-dimensional  
 ultrathin films, as verified by  $\pi$ -A and A-t measurements. Atomic force  
 microscope (AFM) measurements of the transferred one-layer ultrathin films  
 indicate that all the dendrimers show disk-like morphologies, which could  
 be varied in particle size upon changing the surface pressure. The height  
 profiles reveal that the height of the disks is between that of a  
 monolayer and a bilayer, indicating that they are formed due to the  
 aggregation of dendrimers with a distortion and/or partial overlapping.  
 CD (CD) spectra of the transferred multilayer films show Cotton effects  
 due to the exciton couplet of the aromatic moieties adjacent to the  
 bis(diphenylphosphino)-binaphthyl moiety, which is an active catalytic  
 site for the dendrimer. With the increment of the generation, the  
 intensity of the Cotton effects increased, suggesting that the optical  
 active site of the dendrimer can be controlled by the outside wedge.

IT 286015-10-9 286015-11-0  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP  
 (Physical process); PROC (Process)  
 (supramolecular self-assembly chiral dendrimer and its surface  
 structure)  
 RN 286015-10-9 CAPLUS  
 CN Benzamide, N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-  
 diyl]bis[3,5-bis(phenylmethoxy)- (9CI) (CA INDEX NAME)



RN 286015-11-0 CAPLUS  
 CN Benzamide, N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-  
 diyl]bis[3,5-bis(3,5-bis(phenylmethoxy)phenyl)methoxy]- (9CI) (CA INDEX  
 NAME)

PAGE 1-A

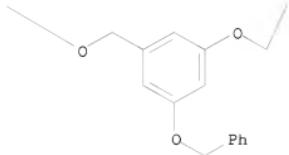


PAGE 1-B

PAGE 2-A



PAGE 2-B



OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
 (1 CITINGS)  
 REFERENCE COUNT: 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

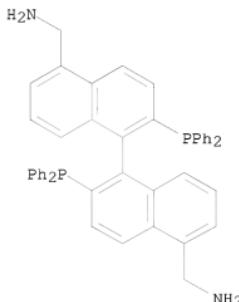
L3 ANSWER 18 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2004:626140 CAPLUS  
 DOCUMENT NUMBER: 141:296154  
 TITLE: Enantioselective catalytic asymmetric hydrogenation of  
 ethyl acetoacetate in room temperature ionic liquids  
 Berthod, Mikael; Joerger, Jean-Michel; Mignani,  
 Gerard; Vautier, Michel; Lemaire, Marc  
 UMR 5181, UCBL, CPE, Laboratoire de Catalyse et  
 Synthese Organique, Villeurbanne, 69622, Fr.  
 AUTHOR(S): Tetrahedron: Asymmetry (2004), 15(14), 2219-2221  
 CORPORATE SOURCE: CODEN: TASYE3; ISSN: 0957-4166  
 SOURCE: Elsevier B.V.  
 PUBLISHER: Journal  
 DOCUMENT TYPE: English  
 LANGUAGE:  
 OTHER SOURCE(S): CASREACT 141:296154  
 AB Ruthenium complexes of bis-ammonio-substituted BINAP ligands catalyze  
 asym. hydrogenation of Et acetoacetate in imidazolium, pyridinium and  
 phosphonium room-temperature ionic liqs. 4,4'-Bis(aminomethyl)-BINAP and  
 5,5'-bis(aminomethyl)-BINAP were protonated to give corresponding  
 hydrobromides and complexed in situ with [Ru(n3-2-methylallyl)2(COD)] to  
 give ruthenium dibromo complexes (9, 10), active in asym. hydrogenation of  
 Et acetoacetate in 1-butyl-3-methylimidazolium hexafluorophosphate (1),  
 N,N-bis(trifluoromethanesulfonyl)imide (2), tetrafluoroborate (3),  
 1-butylypyridinium N,N-bis(trifluoromethanesulfonyl)imide (4),  
 tricyclohexyl(tetradecyl)phosphonium chloride (5) and  
 N,N-bis(trifluoromethanesulfonyl)imide (6) ionic liqs. at room temperature  
 Complete conversion and good selectivity were obtained. Recycling by  
 simple extraction with pentane was also possible.  
 IT 681244-51-9  
 RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES

## (Uses)

(protonation, complexation; asym. hydrogenation of Et acetoacetate in ionic liqs. at room temperature in presence of ruthenium modified ammoniomethyl BINAP catalyst)

RN 681244-51-9 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dimethanamine, 2,2'-bis(diphenylphosphino)-, (1R)- (CA INDEX NAME)



OS.CITING REF COUNT: 35 THERE ARE 35 CAPLUS RECORDS THAT CITE THIS RECORD (37 CITINGS)  
 REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 19 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2004:546440 CAPLUS  
 DOCUMENT NUMBER: 141:107944  
 TITLE: Diphosphines, preparation and uses thereof for manufacture of ligands for metal complex catalysts  
 INVENTOR(S): Lemaire, Marc; Saluzzo, Christine; Berthod, Mikael  
 PATENT ASSIGNEE(S): Rhodia Chimie, Fr.; Centre National de la Recherche Scientifique  
 SOURCE: PCT Int. Appl., 78 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004056483	A1	20040708	WO 2003-FR3782	20031217
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				

RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,  
 BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
 ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK,  
 TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG  
 FR 2849036 A1 20040625 FR 2002-16086 20021218  
 FR 2849036 B1 20050520  
 FR 2853653 A1 20041015 FR 2003-4392 20030409  
 FR 2853653 B1 20071116  
 FR 2854405 A1 20041105 FR 2003-5255 20030429  
 FR 2854405 B1 20080229  
 CA 2509911 A1 20040708 CA 2003-2509911 20031217  
 AU 2003299336 A1 20040714 AU 2003-299336 20031217  
 EP 1633477 A1 20060315 EP 2003-799617 20031217  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK  
 IN 2005CN01258 A 20070622 IN 2005-CN1258 20050615  
 US 20070010695 A1 20070111 US 2006-539640 20060921  
 IN 2007CN01851 A 20071116 IN 2007-CN1851 20070501  
 IN 2007CN01852 A 20071116 IN 2007-CN1852 20070501  
 PRIORITY APPLN. INFO.: FR 2002-16086 A 20021218  
 FR 2003-4392 A 20030409  
 FR 2003-5255 A 20030429  
 WO 2003-FR3782 W 20031217  
 IN 2005-CN1258 A3 20050615

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): CASREACT 141:107944; MARPAT 141:107944

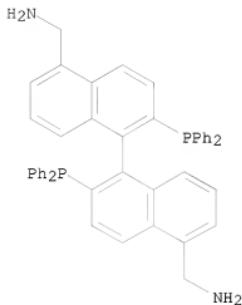
AB Binaphthyl-2,2'-diphosphines having groups in the 5 and 5' positions are manufactured and exhibit complexing ability with Rh, Ru, Re, Ir, Co, Ni, Pt, or Pd to form catalysts for reactions such as asym. hydrogenation. A typical asym. hydrogenation catalyst was manufactured by oxidation of (S)-BINAP, bromination of the resulting diphosphine oxide, reaction of the resulting diphosphine oxide 5,5'-dibromide with Cu(CN)2, reduction of the resulting diphosphine oxide 5,5'-dicyanide with PhSiH3, reduction of the resulting diphosphine 5,5'-dicyanide with LiAlH4, polymerization of the resulting (S)-5,5'-bis(aminomethyl)BINAP with tolylene 2,6-diisocyanate, and complexing the resulting polyurea with Ru.

IT 681244-51-9P 701935-24-2P 701935-25-3P  
 709640-82-4P 717137-70-7P 717908-79-7P

RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);  
 USES (Uses)

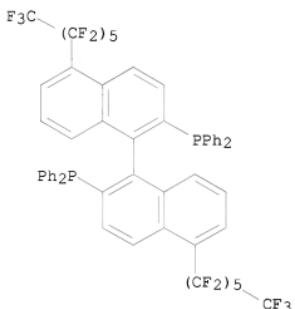
(5,5'-disubstituted binaphthyl diphosphines for manufacture of monomeric and polymeric ligands for metal complex catalysts for asym. reactions)

RN 681244-51-9 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-dimethanamine, 2,2'-bis(diphenylphosphino)-,  
 (1R)- (CA INDEX NAME)



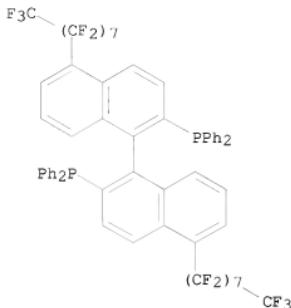
RN 701935-24-2 CAPLUS

CN Phosphine, [(IR)-5,5'-bis(tridecafluorohexyl)][1,1'-binaphthalene]-2,2'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)]

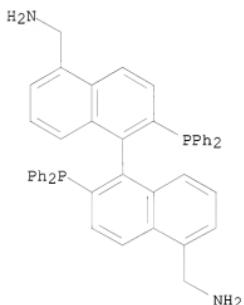


RN 701935-25-3 CAPLUS

CN Phosphine, 1,1'-(IR)-5,5'-bis(1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoroctyl)[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (9CI) (CA INDEX NAME)]



RN 709640-82-4 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-dimethanamine, 2,2'-bis(diphenylphosphino)-,  
 (1S)- (9CI) (CA INDEX NAME)



RN 717137-70-7 CAPLUS  
 CN Poly(iminocarbonylimino(2-methyl-1,3-  
 phenylene)iminocarbonyliminomethylene[(1S)-2,2'-  
 bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]methylene] (9CI) (CA  
 INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

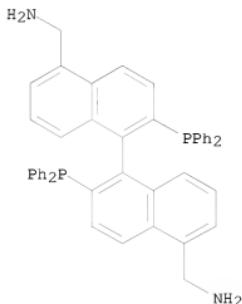
\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

RN 717908-79-7 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dimethanamine, 2,2'-bis(diphenylphosphino)-, (1S)-, polymer with 1,3-diisocyanato-2-methylbenzene (9CI) (CA INDEX NAME)

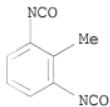
CM 1

CRN 709640-82-4  
 CMF C46 H38 N2 P2

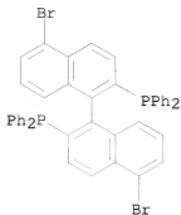


CM 2

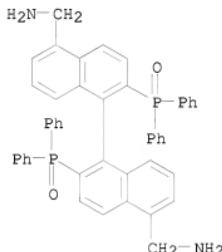
CRN 91-08-7  
 CMF C9 H6 N2 O2



IT 717137-72-9P 717137-73-0P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (intermediate; 5,5'-disubstituted binaphthyl diphenylphosphines for manufacture of monomeric and polymeric ligands for metal complex catalysts for asym. reactions)  
 RN 717137-72-9 CAPLUS  
 CN Phosphine, (5,5'-dibromo[1,1'-binaphthalene]-2,2'-diyl)bis[diphenyl- (9CI) (CA INDEX NAME)]



RN 717137-73-0 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dimethanamine, 2,2'-bis(diphenylphosphinyl)-  
(CA INDEX NAME)

IT 681244-37-1P 681244-41-7P 681244-45-1P

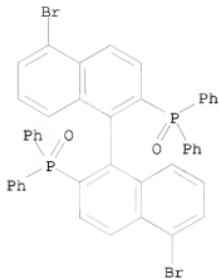
701935-19-5P 709640-79-9P 709640-80-2P

709640-81-3P 717908-78-6P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
(Reactant or reagent)(intermediate; 5,5'-disubstituted binaphthylidiphosphines for manufacture of  
monomeric and polymeric ligands for metal complex catalysts for asym.  
reactions)

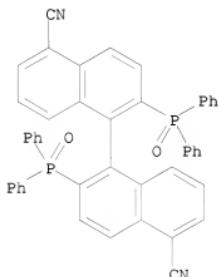
RN 681244-37-1 CAPLUS

CN Phosphine oxide, 1,1'-(1R)-5,5'-dibromo[1,1'-binaphthalene]-2,2'-  
diyl]bis[1,1-diphenyl- (CA INDEX NAME)



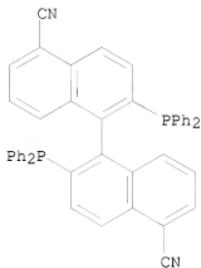
RN 681244-41-7 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dicarbonitrile, 2,2'-bis(diphenylphosphinyl)-, (1R)- (9CI) (CA INDEX NAME)



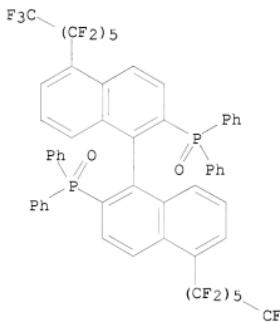
RN 681244-45-1 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dicarbonitrile, 2,2'-bis(diphenylphosphino)-, (1R)- (CA INDEX NAME)



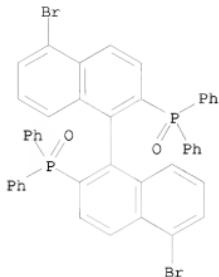
RN 701935-19-5 CAPLUS

CN Phosphine oxide, [(1R)-5,5'-bis(tridecafluorohexyl){1,1'-binaphthalene}-2,2'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



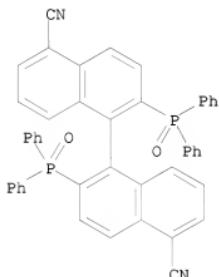
RN 709640-79-9 CAPLUS

CN Phosphine oxide, [(1S)-5,5'-dibromo{1,1'-binaphthalene}-2,2'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



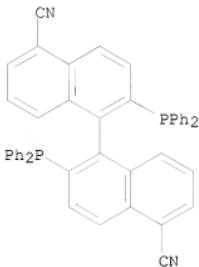
RN 709640-80-2 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dicarbonitrile, 2,2'-bis(diphenylphosphinyl)-, (1S)- (9CI) (CA INDEX NAME)



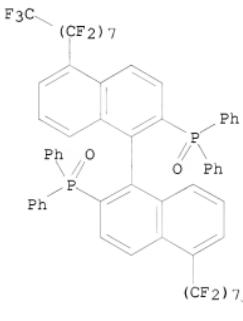
RN 709640-81-3 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dicarbonitrile, 2,2'-bis(diphenylphosphino)-, (1S)- (9CI) (CA INDEX NAME)



RN 717908-78-6 CAPLUS

CN Phosphine oxide, [(1S)-5,5'-bis(heptadecafluoroctyl)[1,1'-binaphthalene]-2,2'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
(2 CITINGS)REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMATL3 ANSWER 20 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
ACCESSION NUMBER: 2004:515337 CAPLUS

DOCUMENT NUMBER: 141:71716

TITLE: Chiral 5,5'-disubstituted binaphthyl diphosphines,  
processes for their preparation, and their uses as  
ligands in asymmetric hydrogenation catalysts

INVENTOR(S): Lemaire, Marc; Saluzzo, Christine; Berthod, Mikael

PATENT ASSIGNEE(S): Rhodia Chimie, Fr.; Centre National De La Recherche  
Scientifique Cnrs

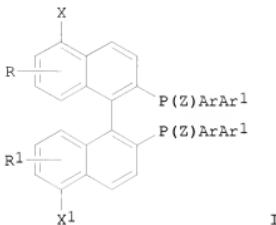
SOURCE: Fr. Demande, 45 pp.  
 DOCUMENT TYPE: CODEN: FRXXBL  
 LANGUAGE: Patent  
 FAMILY ACC. NUM. COUNT: French 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2849036	A1	20040625	FR 2002-16086	20021218
FR 2849036	B1	20050520		
CA 2509911	A1	20040708	CA 2003-2509911	20031217
WO 2004056483	A1	20040708	WO 2003-FR3782	20031217
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003299336	A1	20040714	AU 2003-299336	20031217
CN 1738679	A	20060222	CN 2003-80109027	20031217
EP 1633477	A1	20060315	EP 2003-799617	20031217
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK				
IN 2005CN01258	A	20070622	IN 2005-CN1258	20050615
US 20070010695	A1	20070111	US 2006-539640	20060921
IN 2007CN01851	A	20071116	IN 2007-CN1851	20070501
IN 2007CN01852	A	20071116	IN 2007-CN1852	20070501
PRIORITY APPLN. INFO.:				
			FR 2002-16086	A 20021218
			FR 2003-4392	A 20030409
			FR 2003-5255	A 20030429
			WO 2003-FR3782	W 20031217
			IN 2005-CN1258	A3 20050615

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): CASREACT 141:71716; MARPAT 141:71716

GI

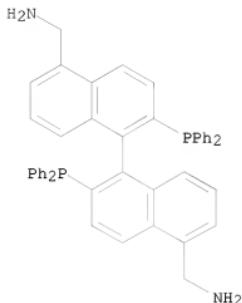


AB Racemic and optically active diphosphines I [Z = lone pair; R, R1 = H, C1-6 alkyl, C1-6 alkoxy; Ar, Ar1 = alkyl, alkenyl, cycloalkyl, aryl, aralkyl, preferably Ph; X, X1 = (un)substituted alkyl, alkenyl, alkynyl, cycloalkyl, aryl, aralkyl, Br, Cl, iod, OH, CN, CH2NH2, CO2H or esters, CH2OH, NHHH2, N3, Mg, Li, etc.] and bis(phosphine oxide)s I [Z = O; same R, R1, Ar, Ar1; X, X1 = Cl, Br, iod] useful, in their optically active form, as ligands for ruthenium, rhodium or iridium catalysts in asym. organic synthesis and in particular for enantioselective hydrogenation of C:C or C:O double bonds, are claimed, as are processes for preparation of I. In an example, treating 0.0235 mmol (S)- or (R)-I (Z = lone pair; R = R1 = H; Ar = Ar1 = Ph; X = X1 = CH2NH2; preparation given) in 1 mL CH2C12 with 0.0235 mmol bis(2-methylallyl)(1,5-cyclooctadiene)ruthenium for 30 min, followed by evaporation of solvent and addition of MeOH or EtOH solvent and Me or Et acetoacetate substrate with a substrate-to-catalyst ratio of 1000:1 and hydrogenation at 40 bar H2 at 50° for 15 h gave 100% conversions to the corresponding alc. with >99% ee, where the configuration of the alc. product depended on the chirality of I used.

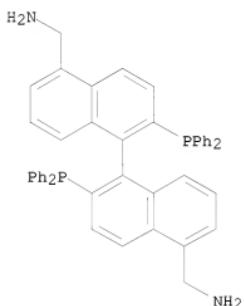
IT 681244-51-9P 709640-82-4P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);  
 USES (Uses)  
 (preparation of chiral binaphthyl diphosphines, and their uses as ligands in  
 asym. hydrogenation catalysts)

RN 681244-51-9 CAPLUS

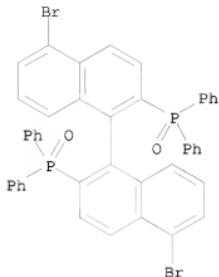
CN [1,1'-Binaphthalene]-5,5'-dimethanamine, 2,2'-bis(diphenylphosphino)-, (1R)- (CA INDEX NAME)



RN 709640-82-4 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-dimethanamine, 2,2'-bis(diphenylphosphino)-,  
 (1S)- (9CI) (CA INDEX NAME)

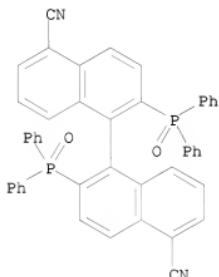


IT 681244-37-1P 681244-41-7P 681244-45-1P  
 709640-79-9P 709640-80-2P 709640-81-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation of chiral binaphthyl diphosphines, and their uses as ligands in  
 asym. hydrogenation catalysts)  
 RN 681244-37-1 CAPLUS  
 CN Phosphine oxide, 1,1'-(1R)-5,5'-dibromo[1,1'-binaphthalene]-2,2'-  
 diyl]bis[1,1-diphenyl- (CA INDEX NAME)



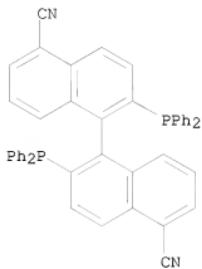
RN 681244-41-7 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dicarbonitrile, 2,2'-bis(diphenylphosphinyl)-, (1R)- (9CI) (CA INDEX NAME)



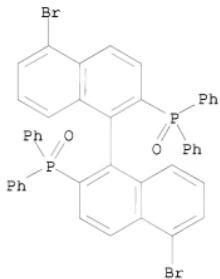
RN 681244-45-1 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dicarbonitrile, 2,2'-bis(diphenylphosphino)-, (1R)- (CA INDEX NAME)



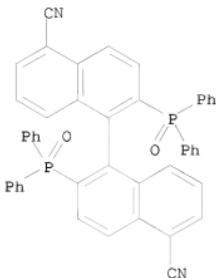
RN 709640-79-9 CAPLUS

CN Phosphine oxide, [(1S)-5,5'-dibromo[1,1'-binaphthalene]-2,2'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



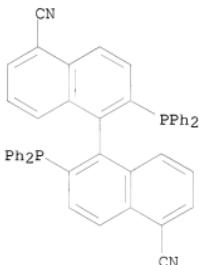
RN 709640-80-2 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dicarbonitrile, 2,2'-bis(diphenylphosphinyl)-, (1S)- (9CI) (CA INDEX NAME)



RN 709640-81-3 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dicarbonitrile, 2,2'-bis(diphenylphosphino)-, (1S)- (9CI) (CA INDEX NAME)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
(2 CITINGS)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 21 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:270947 CAPLUS

DOCUMENT NUMBER: 141:38419

TITLE: New perfluoroalkylated BINAP usable as a ligand in homogeneous and supercritical carbon dioxide asymmetric hydrogenation

AUTHOR(S): Berthod, Mikael; Mignani, Gerard; Lemaire, Marc

CORPORATE SOURCE: Laboratoire de Catalyse et de Synthese Organique, UCBL, UMR 5181, Villeurbanne, Fr.

SOURCE: Tetrahedron: Asymmetry (2004), 15(7), 1121-1126

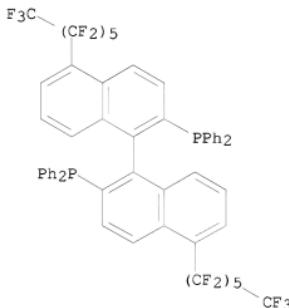
CODEN: TASYE3; ISSN: 0957-4166

PUBLISHER: Elsevier Science B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 141:38419

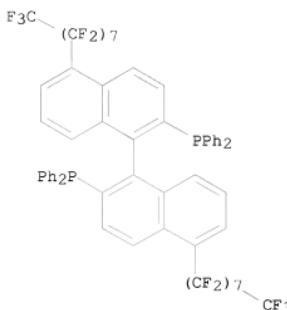
AB New perfluoroalkylated BINAP ligands were synthesized in four steps from enantiomerically pure BINAP. For example, (+)-(1R)-[5,5'-bis(perfluoroethyl)-1,1'-binaphthalene]-2,2'-diylbis(diphenylphosphine) (I) was prepared starting from (1R)-[1,1'-binaphthalene]-2,2'-diylbis(diphenylphosphine) by bromination and subsequent fluoroalkylation. The [(1,2,2,5,6- $\eta$ )-1,5-cyclooctadiene]bis[(1,2,3- $\eta$ )-2-methyl-2-propenyl]ruthenium-catalyzed hydrogenation of (2Z)-2-(acetylamino)-2-butenoic acid Me ester in the presence of I as chiral ligand using supercrit. carbon dioxide as solvent and trifluorotoluene as co-solvent gave 2-(acetylamino)butanoic acid Me ester in 74% enantiomeric excess. The new ligands were used in the homogeneous asym. hydrogenation of Et acetoacetate in ethanol and in the asym. hydrogenation of Me 2-acetamidoacrylate in supercrit. carbon dioxide. In supercrit. media, the addition and nature of a co-solvent have been discussed. Very good conversion and selectivity were obtained in each case.

IT 701935-24-2P 701935-25-3P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);  
 USES (Uses)  
 (preparation of chiral [bis(perfluoroethyl)binaphthalene]diylbis(diphenylphosphine) as ligands for ruthenium-catalyzed stereoselective hydrogenation)

RN 701935-24-2 CAPLUS  
 CN Phosphine, [(1R)-5,5'-bis(tridecafluoroethyl)[1,1'-binaphthalene]-2,2'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)

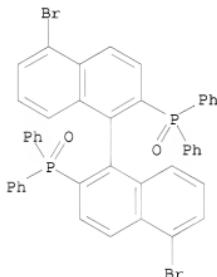


RN 701935-25-3 CAPLUS  
 CN Phosphine, 1,1'-(1R)-5,5'-bis(1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8- heptadecafluoroctyl)[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

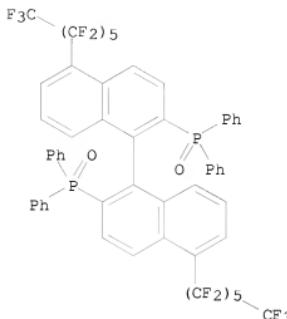


IT 681244-37-1P 701935-19-5P 701935-21-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation of chiral [bis(perfluorohexyl)binaphthalene]diylbis[diphenylphosphine] as ligands for ruthenium-catalyzed stereoselective hydrogenation)

RN 681244-37-1 CAPLUS  
 CN Phosphine oxide, 1,1'-(1R)-5,5'-dibromo[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)

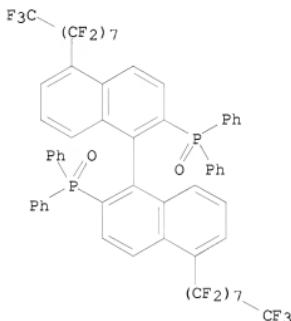


RN 701935-19-5 CAPLUS  
 CN Phosphine oxide, [(1R)-5,5'-bis(tridecafluorohexyl)[1,1'-binaphthalene]-2,2'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



RN 701935-21-9 CAPLUS

CN Phosphine oxide, [(1R)-5,5'-bis(heptadecafluoroctyl)[1,1'-binaphthalene]-2,2'-diyl]bis(diphenyl- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 24 THERE ARE 24 CAPLUS RECORDS THAT CITE THIS RECORD (24 CITINGS)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:106245 CAPLUS

DOCUMENT NUMBER: 140:357425

TITLE: 4,4' and 5,5'-DiamBINAP as a hydrosoluble chiral ligand: syntheses and use in Ru(II) asymmetric biphasic catalytic hydrogenation

AUTHOR(S): Berthod, Mikael; Saluzzo, Christine; Mignani, Gerard; Lemaire, Marc

CORPORATE SOURCE: Laboratoire de Catalyse et de Synthese Organique, UCBL, UMR 5181, Villeurbanne, 69622, Fr.

SOURCE: Tetrahedron: Asymmetry (2004), 15(4), 639-645

CODEN: TASYE3; ISSN: 0957-4166

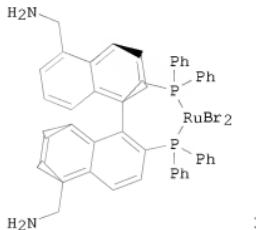
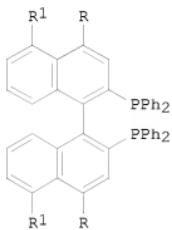
PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 140:357425

GI



AB 4,4' And 5,5'-di(aminomethyl)BINAP (S)-I (R = H2NCH2; R1 = H) and (R)-I (R = H; R1 = H2NCH2) are prepared in five steps from enantiomerically pure BINAP; derived ruthenium (II) catalysts such as II•2HBr are found to be water-soluble and enantioselective catalysts for the hydrogenation of  $\beta$ -keto esters in biphasic water-substrate solns. to give nonracemic  $\beta$ -hydroxy esters in 100% conversion and 96-99% ee. Oxidation of BINAP enantiomers with hydrogen peroxide yields the bis(phosphine oxide) of BINAP. Regioselective bromination of BINAP P,P'-dioxide with bromine and pyridine in methylene chloride yields the 4,4'-dibromide in 76% yield; bromination of BINAP P,P'-dioxide with bromine and iron in 1,2-dichloroethane at 80° yields the 5,5'-dibromide in 81% yield. Coupling of the dibromides with copper (I) cyanide in DMF yields the dinitriles; using the reagent combination of phenylsilane and trichlorosilane, the phosphine oxides are reduced to the phosphines in quant. yield. Reduction of the nitriles with lithium aluminum hydride yields the products I. Treatment of I with aqueous hydrobromic acid followed by addition of the ruthenium complex Ru( $\mu$ 4-1,5-COD)( $\mu$ 3-CH2CMe:CH2)2 and hydrobromic acid in acetone yields water-soluble ruthenium catalysts such as II in quant. yield. Hydrogenation of Me and Et acetoacetate and Me benzoylacetate with catalysts such as II in methanol, ethanol, or water (in which the substrate forms a second phase) at 40 bar hydrogen pressure and 50° for 15 h yields the corresponding  $\beta$ -hydroxy esters in 100% conversion and 96-99% ee.

IT 681244-37-1P 681244-41-7P 681244-45-1P  
681244-51-9P

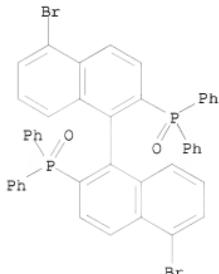
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

(Reactant or reagent)

(preparation of nonracemic di(aminomethyl)BINAP ligands using regioselective bromination and chemoselective phosphine oxide reduction as key steps and the use of the ligands in enantioselective hydrogenation of  $\beta$ -keto esters)

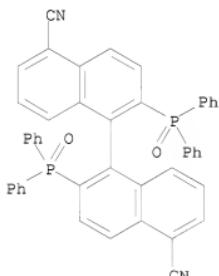
RN 681244-37-1 CAPLUS

CN Phosphine oxide, 1,1'-[((1R)-5,5'-dibromo[1,1'-binaphthalene]-2,2'-diyl]bis[1,1-diphenyl- (CA INDEX NAME)



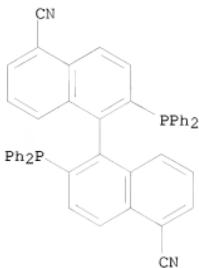
RN 681244-41-7 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dicarbonitrile, 2,2'-bis(diphenylphosphinyl)-, (1R)- (9CI) (CA INDEX NAME)



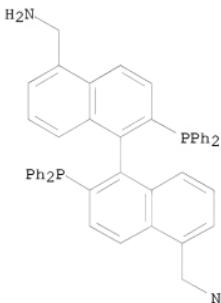
RN 681244-45-1 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dicarbonitrile, 2,2'-bis(diphenylphosphino)-, (1R)- (CA INDEX NAME)



RN 681244-51-9 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-dimethanamine, 2,2'-bis(diphenylphosphino)-, (1R)- (CA INDEX NAME)



OS.CITING REF COUNT: 31 THERE ARE 31 CAPLUS RECORDS THAT CITE THIS RECORD (31 CITINGS)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 23 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:148623 CAPLUS

DOCUMENT NUMBER: 139:133296

TITLE: Dendritic BINAP based system for asymmetric hydrogenation of simple aryl ketones

AUTHOR(S): Deng, Guo-Jun; Fan, Qing-Hua; Chen, Xiao-Min; Liu, Guo-Hua

CORPORATE SOURCE: Institute of Chemistry, Center for Molecular Science, The Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China

SOURCE: Journal of Molecular Catalysis A: Chemical (2003), 193(1-2), 21-25  
 CODEN: JMCCF2; ISSN: 1381-1169  
 PUBLISHER: Elsevier Science B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 139:133296

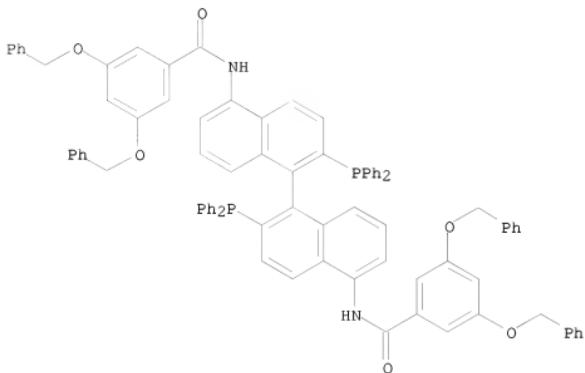
AB Highly effective and recyclable dendritic BINAP-Ru catalysts have been developed for asym. hydrogenation of simple aryl ketones. Dendritic ligands included N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis(phenylmethoxy)benzamide], N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis(phenylmethoxy)phenyl]methoxy]benzamide], and N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis([3,5-bis(phenylmethoxy)phenyl]methoxy]benzamide]. Catalyst systems also included N,N'-1(1R)-2,2'-Bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[benzamide]/(1R,1R)-1,2-diphenyl-1,2-ethanediamine and (R)-BINAP/(1S,1R)-1,2-diphenyl-1,2-ethanediamine. A series of dendritic BINAP-Ru/chiral diamine catalysts were developed for asym. hydrogenation of various simple aryl ketones. The resulting catalytic system showed very attractive due to very good catalytic activity and enantioselectivity as well as facile catalyst recycling. In the case of 1-acetonaphthone and 2-methylacetophenone, interesting e.e. value up to 95% was observed which are comparable to the enantioselectivity reported by Noyori under similar conditions and higher than that of the heterogeneous poly(BINAP)-Ru catalyst reported by Pu and co-workers [Tetrahedron Lett. 41 (2000) 1681].

IT 286015-10-9, N,N'-(1R)-2,2'-Bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis(phenylmethoxy)benzamide]  
 286015-11-0, N,N'-(1R)-2,2'-Bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis([3,5-bis(phenylmethoxy)phenyl]methoxy]benzamide] 566932-78-3,  
 N,N'-(1R)-2,2'-Bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[benzamide]

RL: CAT (Catalyst use); USES (Uses)  
 (dendritic BINAP based system for asym. hydrogenation of simple aryl ketones)

RN 286015-10-9, CAPLUS

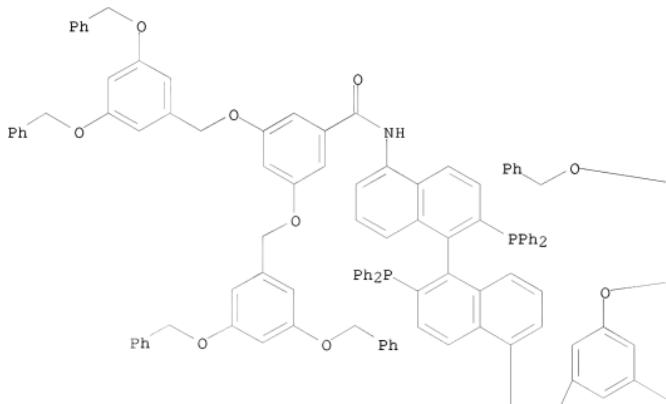
CN Benzamide, N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis(phenylmethoxy)- (9CI) (CA INDEX NAME)



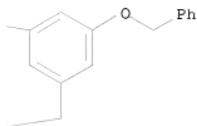
RN 286015-11-0 CAPLUS

CN Benzamide, N,N'-[{(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis(3,5-bis(phenylmethoxy)phenyl)methoxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



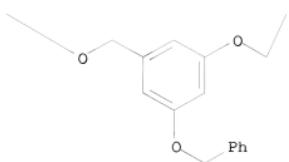
PAGE 1-B



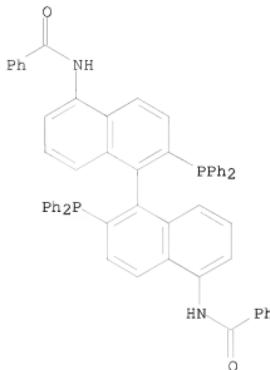
PAGE 2-A



PAGE 2-B

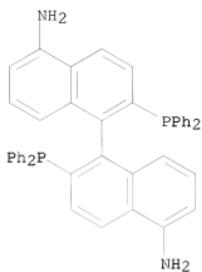


RN 566932-78-3 CAPLUS  
CN Benzamide, N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 27 THERE ARE 27 CAPLUS RECORDS THAT CITE THIS RECORD (27 CITINGS)  
 REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 24 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2002:540932 CAPLUS  
 DOCUMENT NUMBER: 137:310975  
 TITLE: Assembling behavior of BINAP derivative  
 AUTHOR(S): Wu, Peng; Deng, Guojun; Fan, Qinghua; Zeng, Qingdao;  
 Wang, Chen; Wan, Lijun; Bai, Chunli  
 CORPORATE SOURCE: Center for Molecular Science, Institute of Chemistry,  
 The Chinese Academy of Sciences, Beijing, 100080,  
 Peop. Rep. China  
 SOURCE: Chemistry Letters (2002), (7), 706-707  
 PUBLISHER: CODEN: CMLTAG; ISSN: 0366-7022  
 DOCUMENT TYPE: Chemical Society of Japan  
 LANGUAGE: Journal  
 OTHER SOURCE(S): English  
 CASREACT 137:310975  
 AB Ordered assembly of dendritic BINAP ligand was studied by using scanning tunneling microscopy (STM). Probably the mols. are arranged in a dimeric manner in the assembly.  
 IT 244260-43-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (condensation with tris(decyloxy)benzoic acid to give dendritic BINAP ligand)  
 RN 244260-43-3 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1R)-  
 (CA INDEX NAME)



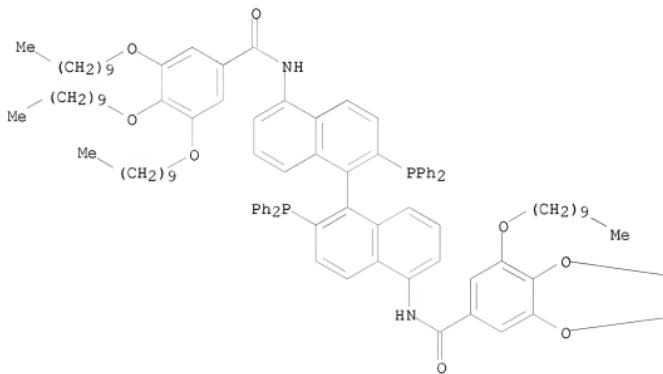
IT 471863-91-9P

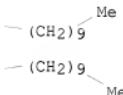
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and structural anal. by scanning tunneling microscopy)

RN 471863-91-9 CAPLUS

CN Benzamide, N,N'-(*IR*-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl)bis[3,4,5-tris(decyloxy)- (9CI) (CA INDEX NAME)

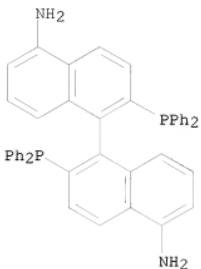
PAGE 1-A





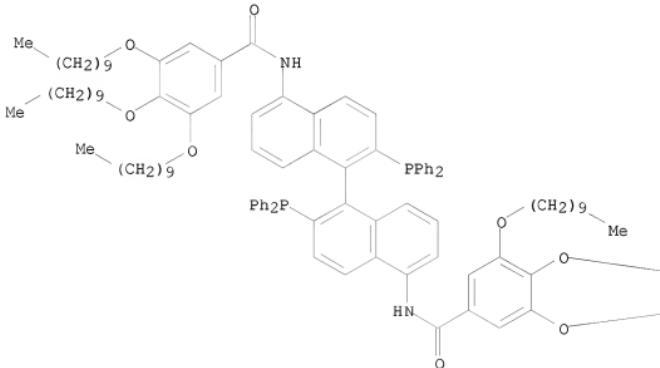
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

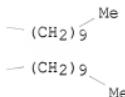
L3 ANSWER 25 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2002:517295 CAPLUS  
 DOCUMENT NUMBER: 138:89317  
 TITLE: A novel system consisting of easily recyclable dendritic Ru-BINAP catalyst for asymmetric hydrogenation  
 AUTHOR(S): Deng, Guo-Jun; Fan, Qing-Hua; Chen, Xiao-Min; Liu, Dong-Sheng; Chan, Albert S. C.  
 CORPORATE SOURCE: Center for Molecular Science, Institute of Chemistry, The Chinese Academy of Sciences, Beijing, 100080, UK  
 SOURCE: Chemical Communications (Cambridge, United Kingdom) (2002), (15), 1570-1571  
 CODEN: CHCOFS; ISSN: 1359-7345  
 PUBLISHER: Royal Society of Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 138:89317  
 AB Dendritic Ru-BINAP catalysts functionalized with alkyl chain at the periphery together with organic binary solvent system that exhibited phase separation induced by addition of a little water have been employed for asym. hydrogenation, leading to high catalytic activity and enantioselectivity as well as facile catalyst recycling.  
 IT 244260-43-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (condensation reaction with dendritic oligomeric polyethers; asym.  
 hydrogenation of aryl acrylic acids in presence of recyclable dendritic ruthenium-BINAP catalyst systems)  
 RN 244260-43-3 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1R)-  
 (CA INDEX NAME)



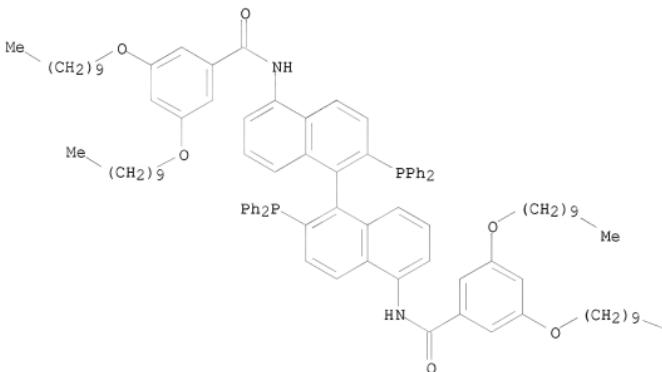
IT 471863-91-9P 483985-21-3P 483985-23-5P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (ligand, complexation with ruthenium compound; preparation of recyclable  
 dendritic ruthenium-BINAP catalyst systems and their catalytic activity  
 in asym. hydrogenation of aryl acrylic acids)  
 RN 471863-91-9 CAPLUS  
 CN Benzamide, N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-  
 diyl]bis[3,4,5-tris(decyloxy)- (9CI) (CA INDEX NAME)

PAGE 1-A





RN 483985-21-3 CAPLUS  
CN Benzanide, N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis(decyloxy)- (9CI) (CA INDEX NAME)

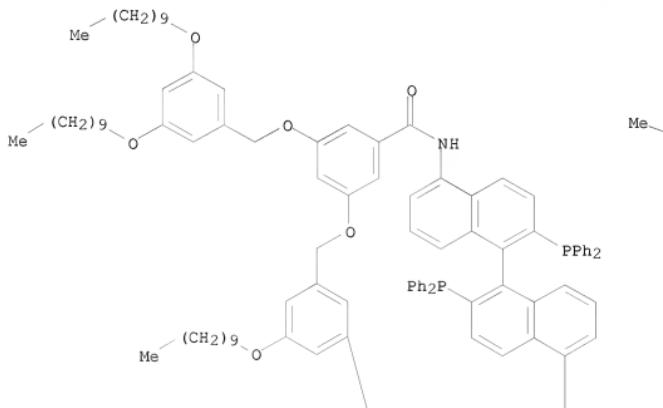


PAGE 1-B

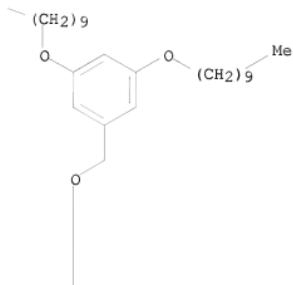
Me

RN 483985-23-5 CAPLUS  
CN Benzamide, N,N'-[{(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis[(3,5-bis(decyloxy)phenyl)methoxy]- (9CI) (CA INDEX NAME)

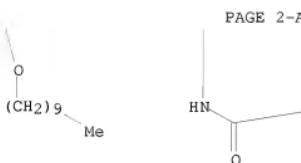
PAGE 1-A



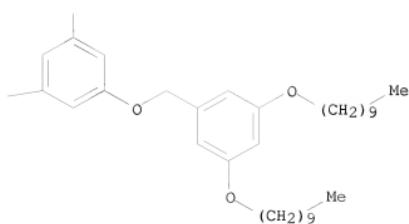
PAGE 1-B



PAGE 2-A



PAGE 2-B



IT 471863-91-9D, complexes with ruthenium 483985-21-3D,

complexes with ruthenium 483985-23-5D, complexes with ruthenium

RL: CAT (Catalyst use); USES (Uses)

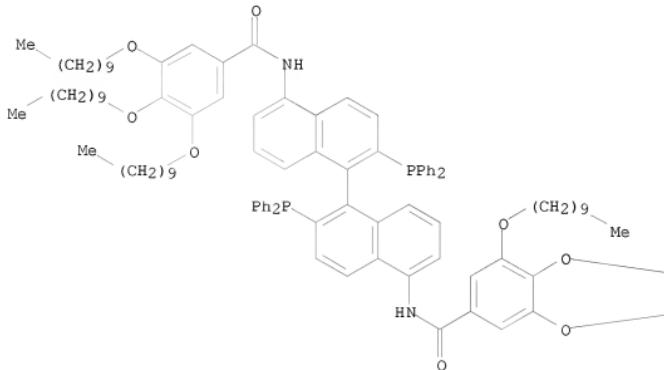
(preparation and partition coefficient of recyclable dendritic ruthenium-BINAP

catalyst systems and their catalytic activity in asym. hydrogenation of aryl acrylic acids)

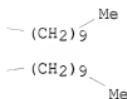
RN 471863-91-9 CAPLUS

CN Benzamide, N,N'-(*(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl*)bis[3,4,5-tris(decyloxy)- (9CI) (CA INDEX NAME)

PAGE 1-A

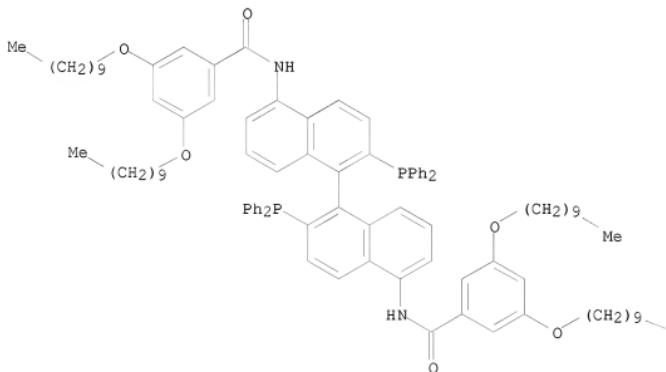


PAGE 1-B



RN 483985-21-3 CAPLUS  
CN Benzamide, N,N'-[{(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis(decyloxy)- (9CI) (CA INDEX NAME)

PAGE 1-A

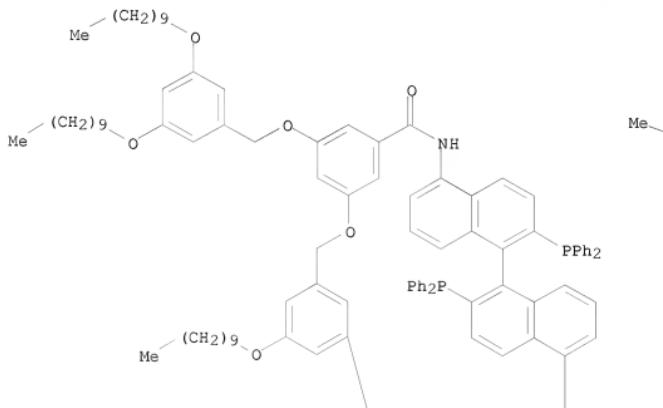


PAGE 1-B

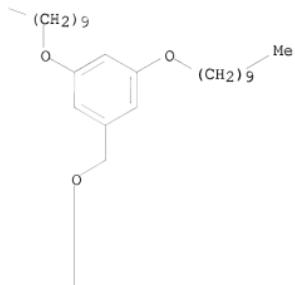
Me

RN 483985-23-5 CAPLUS  
CN Benzamide, N,N'-[{(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis[(3,5-bis(decyloxy)phenyl)methoxy]- (9CI) (CA INDEX NAME)

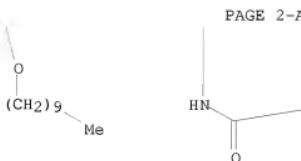
PAGE 1-A



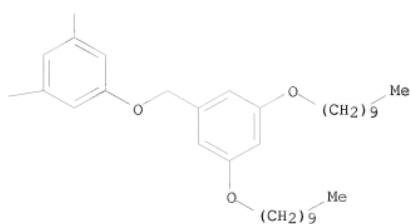
PAGE 1-B



PAGE 2-A



PAGE 2-B



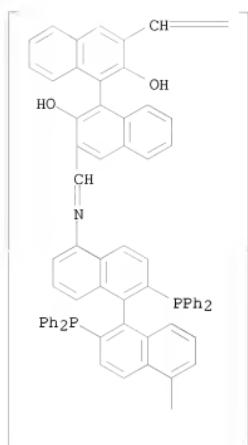
OS.CITING REF COUNT: 56 THERE ARE 56 CAPLUS RECORDS THAT CITE THIS

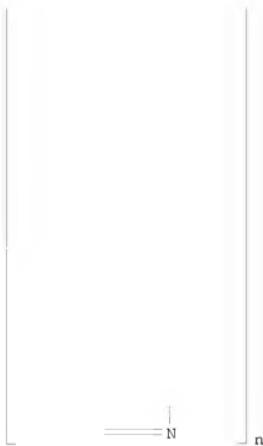
REFERENCE COUNT: 27 RECORD (57 CITINGS)  
 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 26 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2001:878892 CAPLUS  
 DOCUMENT NUMBER: 136:296494  
 TITLE: New soluble bifunctional polymeric chiral ligands for enantioselectively catalytic reactions  
 AUTHOR(S): Fan, Qing-Hua; Liu, Guo-Hua; Deng, Guo-Jun; Chen, Xiao-Min; Chan, Albert S. C.  
 CORPORATE SOURCE: Center for Molecular Science, LMRSS, The Chinese Academy of Sciences, Institute of Chemistry, Beijing, 100080, Peop. Rep. China  
 SOURCE: Tetrahedron Letters (2001), 42(51), 9047-9050  
 PUBLISHER: Elsevier Science Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Two new soluble bifunctional polymeric ligands (R,R)-4 and (R,R)-5 have been prepared via the direct condensation reaction of (R)-3,3'-diformyl-1,1'-bi-2-naphthol (R)-1 with (R)-5,5'-diamino BINAP (R)-2 and with (R)-5,5'-diamino BINAPO (R)-3, resp. The different types of catalytic centers, BINOL and BINAP or BINAPO, were alternatively organized in a regular chiral polymer chain. Both polymeric ligands were found to be effective in the addition of diethylzinc to benzaldehyde either in the presence or in the absence of Ti(OPri)<sub>4</sub> with different enantioselectivities. (R,R)-4/Ti(IV) catalyst, which showed similar efficiency to the parent catalyst BINOL/Ti(IV), was more enantioselective than (R,R)-5/Ti(IV). (R,R)-4 was also found to be highly effective in the Ru(II)-catalyzed asym. hydrogenation of 2-arylacrylic acids. The use of the co-polymer catalyst rather than a mixture of monomer catalysts not only simplified the recycling of the catalyst, but also improved the enantioselectivity and/or the activity in some cases.

IT 406933-98-0P 406933-99-1P 406935-39-5P  
 406936-18-3P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);  
 USES (Uses)  
 (ligand; preparation of new soluble bifunctional polymeric chiral ligands  
 for  
 enantioselectively catalytic reactions)  
 RN 406933-98-0 CAPLUS  
 CN Poly[nitrilo[(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]nitrilomethylidyne[(1R)-2,2'-dihydroxy[1,1'-binaphthalene]-3,3'-diyl]methylidyne] (9CI) (CA INDEX NAME)

PAGE 1-A





PAGE 2-A

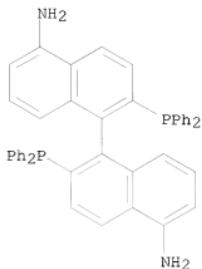
RN 406933-99-1 CAPLUS  
CN Poly[nitrilo[(1R)-2,2'-bis(diphenylphosphinyl)[1,1'-binaphthalene]-5,5'-diyl]nitrilomethylidyne[(1R)-2,2'-dihydroxy[1,1'-binaphthalene]-3,3'-diyl]methylidyne] (9CI) (CA INDEX NAME)

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

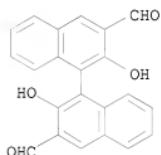
\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*  
RN 406935-39-5 CAPLUS  
CN [1,1'-Binaphthalene]-3,3'-dicarboxaldehyde, 2,2'-dihydroxy-, (1R)-, polymer with (1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 244260-43-3  
CMF C44 H34 N2 P2



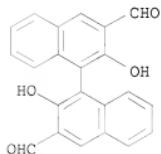
CM 2

CRN 121314-69-0  
CMF C22 H14 O4

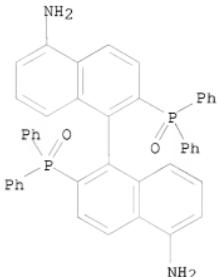
RN 406936-18-3 CAPLUS

CN [1,1'-Binaphthalene]-3,3'-dicarboxaldehyde, 2,2'-dihydroxy-, (1R)-, polymer with (+)-2,2'-bis(diphenylphosphinyl)[1,1'-binaphthalene]-5,5'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 121314-69-0  
CMF C22 H14 O4

CM 2

CRN 114317-09-8  
CMF C44 H34 N2 O2 P2

OS.CITING REF COUNT: 27 THERE ARE 27 CAPLUS RECORDS THAT CITE THIS RECORD (28 CITINGS)  
 REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 27 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2001:457144 CAPLUS  
 DOCUMENT NUMBER: 135:273246  
 TITLE: Preparation and use of MeO-PEG-supported chiral diphosphine ligands: soluble polymer-supported catalysts for asymmetric hydrogenation  
 AUTHOR(S): Fan, Q.-H.; Deng, G.-J.; Lin, C.-C.; Chan, A. S. C.  
 CORPORATE SOURCE: Institute of Chemistry, Center for Molecular Science, LMRSS, The Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China  
 SOURCE: Tetrahedron: Asymmetry (2001), 12(8), 1241-1247  
 PUBLISHER: Elsevier Science Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Two new chiral MeO-PEG-supported (R)-BINAP and (3R,4R)-Pyrphos ligands were synthesized and employed in the Ru(II)- and Rh(I)-catalyzed asym. hydrogenation of 2-(6-methoxy-2-naphthyl)propenoic acid (I) and prochiral enamides. These new soluble polymeric catalysts exhibited high activity and enantioselectivity. Enantiomeric excesses (e.e.s) in the ranges 90-96% and 86-96% were achieved in the hydrogenation of I and the enamides, resp. Furthermore, these catalysts could be recovered easily, and the recycled catalysts were shown to maintain their efficiency in subsequent reactions.  
 IT 363165-72-4DP, ruthenium binaphthyl/p-cymene complexes  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(MeO-PEG-supported chiral diphosphine ligands for soluble polymer-supported catalysts for asym. hydrogenation)

RN 363165-72-4 CAPLUS

CN 1,4-Benzenedicarbonyl dichloride, polymer with (1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine and oxirane, methyl ether, block (9CI) (CA INDEX NAME)

CM 1

CRN 67-56-1

CMF C H4 O

H<sub>3</sub>C-OH

CM 2

CRN 363165-71-3

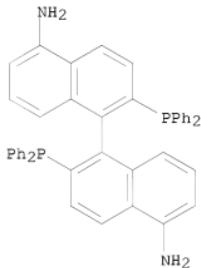
CMF (C44 H34 N2 P2 . C8 H4 Cl2 O2 . C2 H4 O)x

CCI PMS

CM 3

CRN 244260-43-3

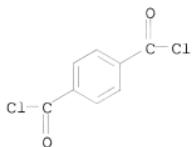
CMF C44 H34 N2 P2



CM 4

CRN 100-20-9

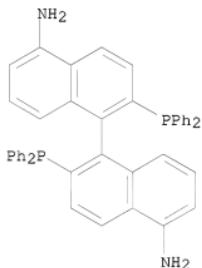
CMF C8 H4 Cl2 O2



CM 5

CRN 75-21-8  
CMF C2 H4 O

IT 244260-43-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (MeO-PEG-supported chiral diphosphine ligands for soluble  
 polymer-supported catalysts for asym. hydrogenation)  
 RN 244260-43-3 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1R)-  
 (CA INDEX NAME)



IT 363165-72-4P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (MeO-PEG-supported chiral diphosphine ligands for soluble  
 polymer-supported catalysts for asym. hydrogenation)  
 RN 363165-72-4 CAPLUS  
 CN 1,4-Benzenedicarbonyl dichloride, polymer with  
 (1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine and  
 oxirane, methyl ether, block (9CI) (CA INDEX NAME)

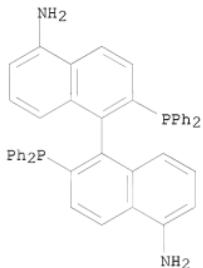
CM 1

CRN 67-56-1  
CMF C H4 OH<sub>3</sub>C—OH

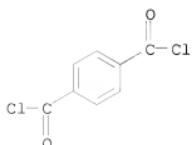
CM 2

CRN 363165-71-3  
CMF (C<sub>44</sub> H<sub>34</sub> N<sub>2</sub> P<sub>2</sub> . C<sub>8</sub> H<sub>4</sub> Cl<sub>2</sub> O<sub>2</sub> . C<sub>2</sub> H<sub>4</sub> O)x  
CCI PMS

CM 3

CRN 244260-43-3  
CMF C<sub>44</sub> H<sub>34</sub> N<sub>2</sub> P<sub>2</sub>

CM 4

CRN 100-20-9  
CMF C<sub>8</sub> H<sub>4</sub> Cl<sub>2</sub> O<sub>2</sub>

CM 5

CRN 75-21-8  
CMF C2 H4 O

OS.CITING REF COUNT: 49 THERE ARE 49 CAPLUS RECORDS THAT CITE THIS RECORD (49 CITINGS)  
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 28 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
ACCESSION NUMBER: 2000:508669 CAPLUS  
DOCUMENT NUMBER: 134:4502  
TITLE: A highly effective water-soluble polymer-supported catalyst for the two-phase asymmetric hydrogenation: preparation and use of a PEG-bound BINAP ligand  
AUTHOR(S): Fan, Q.-H.; Deng, G.-J.; Chen, X.-M.; Xie, W.-C.; Jiang, D.-Z.; Liu, D.-S.; Chan, A. S. C.  
CORPORATE SOURCE: Institute of Chemistry, Center for Molecular Science, The Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China  
SOURCE: Journal of Molecular Catalysis A: Chemical (2000), 159(1), 37-43  
CODEN: JMCCF2; ISSN: 1381-1169  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 134:4502  
AB A new type of amphiphilic PEG-bound BINAP ligand was synthesized through polycondensation of 5,5'-diamino BINAP, polyethylene glycol and terephthaloyl chloride in the presence of pyridine. It was shown that a ruthenium complex based on the new polymeric ligand was an effective catalyst for the asym. hydrogenation of prochiral  $\alpha,\beta$ -unsatd. carboxylic acids in both Et acetate/water two-phase and in methanolic solvent systems. The activity and/or enantioselectivity in two-phase systems were observed to be higher than that in Et acetate or methanol-water homogeneous systems. The replacement of water with ethylene glycol increased the activity and enantioselectivity. The activity of the new catalyst was shown to be about 30 times higher in the two-phase hydrogenation of 2-(6'-methoxy-2'-naphthyl)-acrylic acid than the Ru(BINAP-4SO<sub>3</sub>Na) catalyst without the long hydrophilic polymer chain, which illustrated the importance of the amphiphilic structure of the polymeric ligand.  
IT 308795-87-1P  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
for (preparation of water-soluble polyethylene glycol-supported BINAP catalyst  
RN 308795-87-1 CAPLUS  
CN 1,4-Benzenedicarbonyl dichloride, polymer with

10/539640 12/30/2009

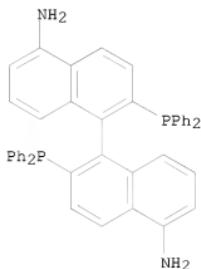
STN: SEARCH

(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine and  
 $\alpha$ -hydro- $\alpha$ -hydroxypoly(oxy-1,2-ethanediyl) (CA INDEX NAME)

CM 1

CRN 244260-43-3

CMF C44 H34 N2 P2

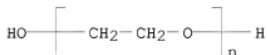


CM 2

CRN 25322-68-3

CMF (C2 H4 O)n H2 O

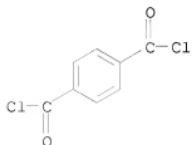
CCl PMS



CM 3

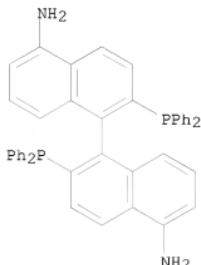
CRN 100-20-9

CMF C8 H4 Cl2 O2



IT 244260-43-3

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of water-soluble polyethylene glycol-supported BINAP catalyst  
 for  
 two-phase asym. hydrogenation)  
 RN 244260-43-3 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1R)-  
 (CA INDEX NAME)



OS.CITING REF COUNT: 50 THERE ARE 50 CAPLUS RECORDS THAT CITE THIS RECORD (51 CITINGS)  
 REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

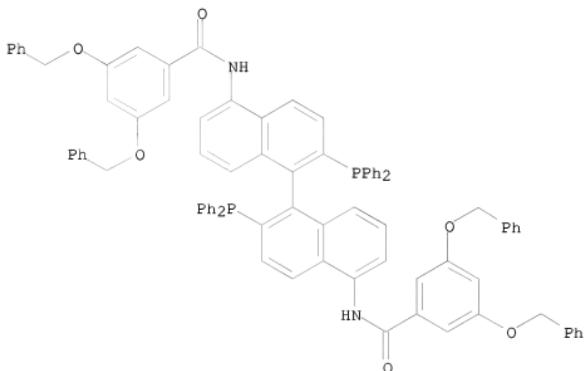
L3 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 2000:281660 CAPLUS  
 DOCUMENT NUMBER: 133:135081  
 TITLE: Highly effective and recyclable dendritic BINAP ligands for asymmetric hydrogenation  
 AUTHOR(S): Fan, Qing-Hua; Chen, Yong-Ming; Chen, Xiao-Min; Jiang, Da-Zhi; Xi, Fu; Chan, Albert S. C.  
 CORPORATE SOURCE: LMRSS, Cent. Mol. Sci., Inst. Chem., The Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China  
 SOURCE: Chemical Communications (Cambridge) (2000), (9), 789-790  
 CODEN: CHCOFS; ISSN: 1359-7345  
 PUBLISHER: Royal Society of Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 133:135081

AB A series of dendritic BINAP ligands have been synthesized by reaction of (R)-5,5'-diamino-BINAP with 3,5-(PhCH<sub>2</sub>O)2C<sub>6</sub>H<sub>3</sub>CO<sub>2</sub>H or 3,5-[3,5-(RO)2C<sub>6</sub>H<sub>3</sub>CH<sub>2</sub>]2C<sub>6</sub>H<sub>3</sub>CO<sub>2</sub>H [R = CH<sub>2</sub>Ph, 3,5-(PhCH<sub>2</sub>O)2C<sub>6</sub>H<sub>3</sub>CH<sub>2</sub>] and their ruthenium complexes used as catalysts in asym. hydrogenation of 4-Me<sub>2</sub>CHCH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>C(:CH<sub>2</sub>)CO<sub>2</sub>H to give (R)-ibuprofen in high ee.

IT 286015-10-9P 286015-11-0P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);  
 USES (Uses)  
 (highly effective and recyclable dendritic BINAP ligands for asym. hydrogenation)

RN 286015-10-9 CAPLUS

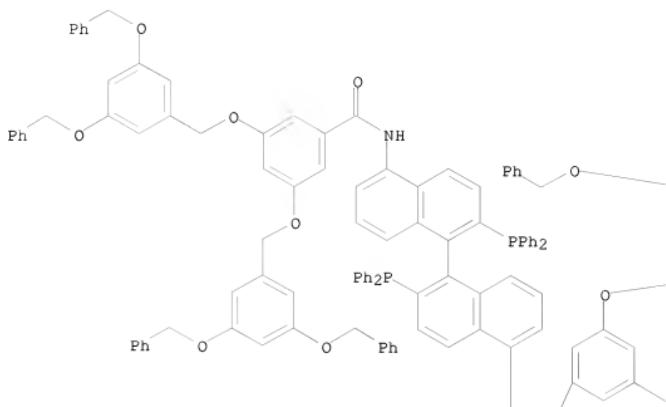
CN Benzamide, N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis(phenylmethoxy)- (9CI) (CA INDEX NAME)



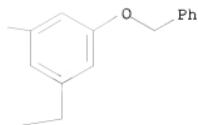
RN 286015-11-0 CAPLUS

CN Benzamide, N,N'-(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis[3,5-bis(3,5-bis(phenylmethoxy)phenyl)methoxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



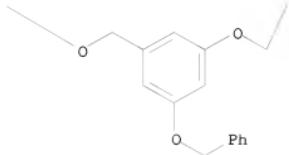
PAGE 1-B



PAGE 2-A



PAGE 2-B

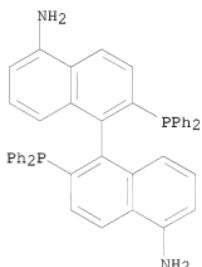


IT 244260-43-3

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (highly effective and recyclable dendritic BINAP ligands for asym.  
 hydrogenation)

RN 244260-43-3 CAPLUS

CN [*1,1'-Binaphthalene*]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1R)-  
 (CA INDEX NAME)



OS.CITING REF COUNT: 119 THERE ARE 119 CAPLUS RECORDS THAT CITE THIS  
 RECORD (120 CITINGS)

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

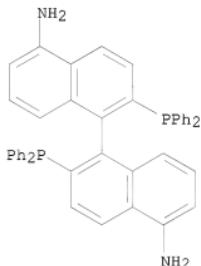
L3 ANSWER 30 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:228629 CAPLUS

DOCUMENT NUMBER: 133:4462

TITLE: Catalytic use of chiral phosphine ligands in

AUTHOR(S): asymmetric Pauson-Khand reactions  
 Hiroi, Kunio; Watanabe, Takashi; Kawagishi, Ryoko;  
 Abe, Ikuko  
 CORPORATE SOURCE: Department of Synthetic Organic Chemistry, Tohoku  
 Pharmaceutical University, Miyagi, 981-8558, Japan  
 SOURCE: Tetrahedron: Asymmetry (2000), 11(3), 797-808  
 CODEN: TASYE3; ISSN: 0957-4166  
 PUBLISHER: Elsevier Science Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 133:4462  
 AB Catalytic asym. Pauson-Khand reactions with chiral bidentate phosphines as ligands have been successfully accomplished. The catalytic use of (S)-BINAP as a ligand was demonstrated to be the most effective in the cobalt-catalyzed reactions of 1,6-enynes, providing a facile entry to optically active 2-cyclopentenone derivs. with high enantioselectivity. A plausible mechanism for the asym. induction is proposed on the basis of the stereochem. outcome obtained.  
 IT 244260-43-3  
 RL: CAT (Catalyst use); USES (Uses)  
 (asym. Pauson-Khand reaction catalyzed in presence of chiral phosphine ligands)  
 RN 244260-43-3 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1R)-  
 (CA INDEX NAME)



OS.CITING REF COUNT: 60 THERE ARE 60 CAPLUS RECORDS THAT CITE THIS RECORD (61 CITINGS)  
 REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 31 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1999:748353 CAPLUS  
 DOCUMENT NUMBER: 132:12597  
 TITLE: Soluble polyester-supported chiral phosphines  
 INVENTOR(S): Chan, Albert Sun-Chi; Fan, Qing-Hua  
 PATENT ASSIGNEE(S): The Hong Kong Polytechnic University, Hong Kong  
 SOURCE: U.S., 15 pp.  
 CODEN: USXXAM

DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5990318	A	19991123	US 1998-72590	19980306
			US 1998-72590	19980306

PRIORITY APPLN. INFO.: ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
 OTHER SOURCE(S): MARPAT 132:12597

AB Novel soluble polyester-supported chiral phosphines have been prepared and have been used in the preparation of rhodium and ruthenium catalysts. Such polymer-supported catalysts show high catalytic activities and enantioselectivities. In the case of Ru(BINAP) catalyst supported on soluble polyester, the resulting catalysts were found to be more active than those of the corresponding homogeneous Ru(BINAP) catalysts in the asym. hydrogenation of 2-arylpropenoic acids. These soluble polyester-supported catalysts can be easily separated from the reaction mixture and then be reused without loss of activity and selectivity. A typical polyester was manufactured by polymerization of 2S,4S-pentanediol 9.76, terephthaloyl chloride 9.95, and (S)-5,5'-diamino-BINAP in C5H5N-1,2-dichloroethane.

IT 244260-44-4P 244260-45-5P 251090-17-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(catalyst precursor; soluble polyester-supported chiral phosphines for catalysts for asym. hydrogenation of arylpropenoic acids)

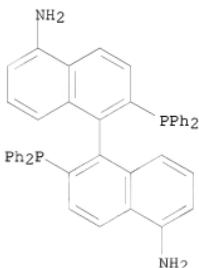
RN 244260-44-4 CAPLUS

CN 1,4-Benzenedicarbonyl dichloride, polymer with (2S,4S)-2,4-pentanediol and (1S)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 244260-42-2

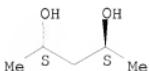
CMF C44 H34 N2 P2



CM 2

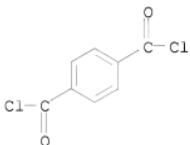
CRN 72345-23-4  
 CMF C5 H12 O2

Absolute stereochemistry. Rotation (+).



CM 3

CRN 100-20-9  
 CMF C8 H4 Cl2 O2

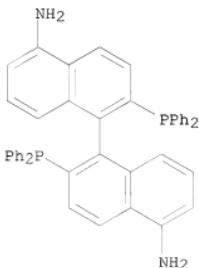


RN 244260-45-5 CAPLUS

CN 1,4-Benzene dicarbonyl dichloride, polymer with (2S,4S)-2,4-pentanediol and (1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine (9CI)  
 (CA INDEX NAME)

CM 1

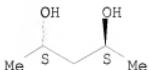
CRN 244260-43-3  
 CMF C44 H34 N2 P2



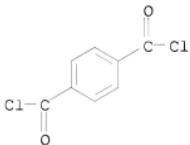
CM 2

CRN 72345-23-4  
CMF C5 H12 O2

Absolute stereochemistry. Rotation (+).



CM 3

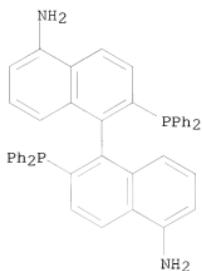
CRN 100-20-9  
CMF C8 H4 Cl2 O2

RN 251090-17-2 CAPLUS

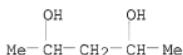
CN 1,4-Benzenedicarbonyl dichloride, polymer with  
(1S)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine and  
2,4-pentanediol (9CI) (CA INDEX NAME)

CM 1

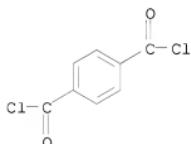
CRN 244260-42-2  
CMF C44 H34 N2 P2



CM 2

CRN 625-69-4  
CMF C5 H12 O2

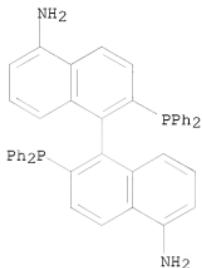
CM 3

CRN 100-20-9  
CMF C8 H16 O2IT 244260-44-4DP, ruthenium complexes 244260-45-5DP,  
ruthenium complexesRL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);  
USES (Uses)  
(soluble polyester-supported chiral phosphines for catalysts for asym.  
hydrogenation of arylpropenoic acids)

RN 244260-44-4 CAPLUS

CN 1,4-Benzenedicarbonyl dichloride, polymer with (2S,4S)-2,4-pentanediol and  
(1S)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine (9CI)  
(CA INDEX NAME)

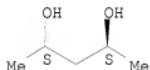
CM 1

CRN 244260-42-2  
CMF C44 H34 N2 P2

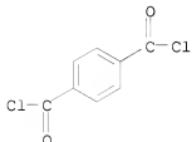
CM 2

CRN 72345-23-4  
CMF C5 H12 O2

Absolute stereochemistry. Rotation (+).



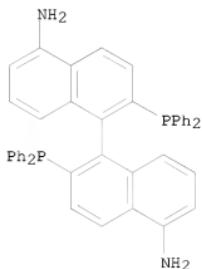
CM 3

CRN 100-20-9  
CMF C8 H4 Cl2 O2RN 244260-45-5 CAPLUS  
CN 1,4-Benzenedicarbonyl dichloride, polymer with (2S,4S)-2,4-pentanediol and

(1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine (9CI)  
(CA INDEX NAME)

CM 1

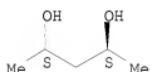
CRN 244260-43-3  
CMF C44 H34 N2 P2



CM 2

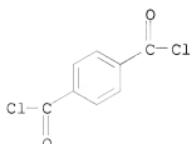
CRN 72345-23-4  
CMF C5 H12 O2

Absolute stereochemistry. Rotation (+).



CM 3

CRN 100-20-9  
CMF C8 H4 Cl2 O2



OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD  
 (10 CITINGS)  
 REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 32 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1999:474272 CAPLUS  
 DOCUMENT NUMBER: 131:242777  
 TITLE: Highly Effective Soluble Polymer-Supported Catalysts  
 for Asymmetric Hydrogenation  
 AUTHOR(S): Fan, Qing-hua; Ren, Chang-yu; Yeung, Chi-hung; Hu,  
 Wen-hao; Chan, Albert S. C.  
 CORPORATE SOURCE: Union Laboratory of Asymmetric Synthesis and  
 Department of Applied Biology and Chemical Technology,  
 The Hong Kong Polytechnic University, Hong Kong  
 SOURCE: Journal of the American Chemical Society (1999),  
 121(32), 7407-7408  
 PUBLISHER: CODEN: JACSAT; ISSN: 0002-7863  
 DOCUMENT TYPE: American Chemical Society  
 LANGUAGE: Journal  
 OTHER SOURCE(S): English  
 CASREACT 131:242777

AB Soluble nonracemic polymer supports are prepared from (2S,4S)-pentanediol, terephthaloyl chloride, and either (R)- or (S)-5,5'-diamino-BINAP; the catalysts prepared from the supports and a ruthenium precursor allow asym. hydrogenation in high yield and conversion and provide higher conversions and ee than the analogous solution phase ligands. E.g., dehydronaproxen [2-(6-methoxy-2-naphthyl)-2-propenoic acid] is hydrogenated in the presence of the (R)- or (S)-BINAP polymeric catalysts and triethylamine in toluene-methanol to give (R)- or (S)-naproxen, resp., in 93% ee and 100% conversion. The polymer-bound ruthenium hydrogenation catalysts can be precipitated from the reaction mixts. by cold methanol and filtered. The (R)-BINAP catalyst was treated with [Ru(cymene)Cl<sub>2</sub>]<sub>2</sub> to prepare a recyclable hydrogenation catalyst which maintained its enantioselectivity and conversion through 10 hydrogenation cycles.

IT 244260-45-5P  
 RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent); USES (Uses)  
 (preparation of nonracemic soluble, polymeric, and recyclable catalyst  
 supports

for asym. hydrogenation)

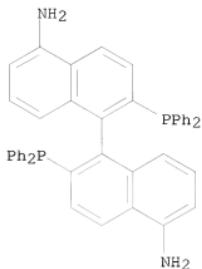
RN 244260-45-5 CAPLUS

CN 1,4-Benzenedicarbonyl dichloride, polymer with (2S,4S)-2,4-pentanediol and (1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine (9CI)  
 (CA INDEX NAME)

CM 1

CRN 244260-43-3

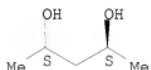
CMF C44 H34 N2 P2



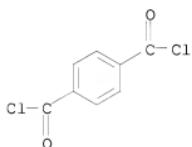
CM 2

CRN 72345-23-4  
CMF C5 H12 O2

Absolute stereochemistry. Rotation (+).



CM 3

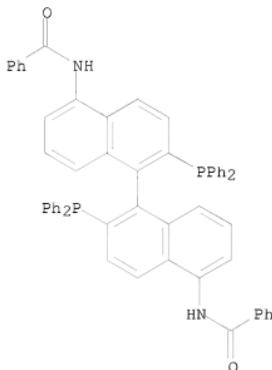
CRN 100-20-9  
CMF C8 H4 Cl2 O2

IT 244260-30-8P 244260-44-4P 244260-45-5DP,  
 ruthenium complex with  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);  
 USES (Uses)  
 (preparation of nonracemic soluble, polymeric, and recyclable catalyst  
 supports  
 for asym. hydrogenation)  
 RN 244260-30-8 CAPLUS

10/539640 12/30/2009

STN: SEARCH

CN Benzamide, N,N'-(1S)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl (9CI) (CA INDEX NAME)



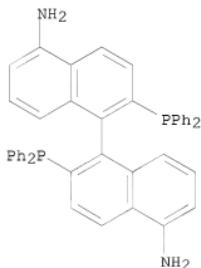
RN 244260-44-4 CAPLUS

CN 1,4-Benzenedicarbonyl dichloride, polymer with (2S,4S)-2,4-pentanediol and (1S)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 244260-42-2

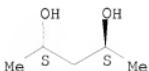
CMF C44 H34 N2 P2



CM 2

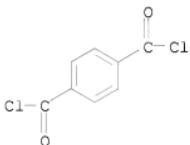
CRN 72345-23-4  
 CMF C5 H12 O2

Absolute stereochemistry. Rotation (+).



CM 3

CRN 100-20-9  
 CMF C8 H4 Cl2 O2

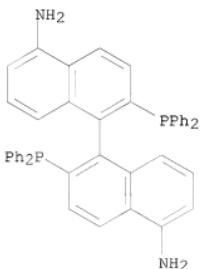


RN 244260-45-5 CAPLUS

CN 1,4-Benzenedicarbonyl dichloride, polymer with (2S,4S)-2,4-pentanediol and (1R)-2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diamine (9CI)  
 (CA INDEX NAME)

CM 1

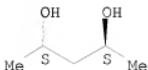
CRN 244260-43-3  
 CMF C44 H34 N2 P2



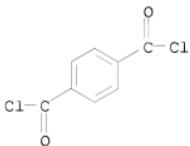
CM 2

CRN 72345-23-4  
CMF C5 H12 O2

Absolute stereochemistry. Rotation (+).



CM 3

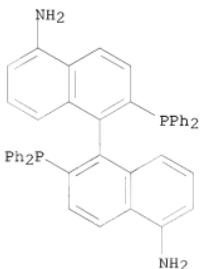
CRN 100-20-9  
CMF C8 H4 Cl2 O2

IT 244260-42-2 244260-43-3

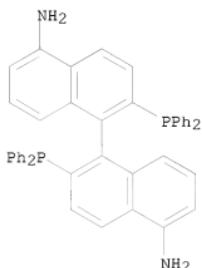
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of nonracemic soluble, polymeric, and recyclable catalyst  
supports

for asym. hydrogenation)

RN 244260-42-2 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1S)-  
(CA INDEX NAME)

RN 244260-43-3 CAPLUS  
 CN [*1,1'*-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (1R)-  
 (CA INDEX NAME)



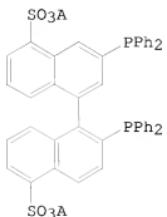
OS.CITING REF COUNT: 98 THERE ARE 98 CAPLUS RECORDS THAT CITE THIS RECORD (98 CITINGS)  
 REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 33 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1993:581016 CAPLUS  
 DOCUMENT NUMBER: 119:181016  
 ORIGINAL REFERENCE NO.: 119:32371a,32374a  
 TITLE: Preparation of water-soluble alkali metal sulfonate-substituted binaphthylphosphine transition metal complexes and enantioselective hydrogenation method using them  
 INVENTOR(S): Ishizaki, Takerou; Kumabayashi, Hidenori  
 PATENT ASSIGNEE(S): Takasago International Corp., Japan  
 SOURCE: Eur. Pat. Appl., 9 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 544455	A1	19930602	EP 1992-310561	19921119
EP 544455	B1	19970212		
R: CH, DE, FR, GB, IT, LI				
JP 05170780	A	19930709	JP 1991-331535	19911121
JP 2736947	B2	19980408		
US 5274146	A	19931228	US 1992-977638	19921117
US 5324861	A	19940628	US 1993-116583	19930907
PRIORITY APPLN. INFO.:			JP 1991-331535	A 19911121
			US 1992-977638	A3 19921117

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): CASREACT 119:181016; MARPAT 119:181016  
GI



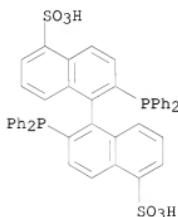
AB  $[M(X)n(Q)(SO_3A\text{-BINAP})]Y$  ( $M = \text{Ru, Ir, Rh, Pd, etc.}; SO_3A\text{-BINAP} = \text{tertiary phosphine represented by formula I (A = alkali metal atom), X = Cl, Br, iodo; n = 0, 1; Q = benzene or p-cymene, Y = Cl, Br, iodo, ClO_4, PF_6, BF_4}$ ) were prepared and shown to be catalysts for the enantioselective hydrogenation of olefins, ketones, and imines.

IT 150271-78-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and reactions of, with ruthenium and iridium complexes, enantioselective hydrogenation catalyst from)

RN 150271-78-6 CAPLUS

CN [1,1'-Binaphthalene]-5,5'-disulfonic acid, 2,2'-bis(diphenylphosphino)-, disodium salt, (R)- (9CI) (CA INDEX NAME)

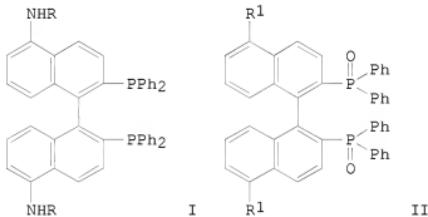


●2 Na

OS.CITING REF COUNT: 19 THERE ARE 19 CAPLUS RECORDS THAT CITE THIS RECORD (22 CITINGS)

L3 ANSWER 34 OF 34 CAPLUS COPYRIGHT 2009 ACS on STN  
 ACCESSION NUMBER: 1988:204837 CAPLUS  
 DOCUMENT NUMBER: 108:204837  
 ORIGINAL REFERENCE NO.: 108:33665a,33668a  
 TITLE: Preparation of chiral phosphine compounds  
 INVENTOR(S): Okano, Tamon; Shimano, Yasunobu; Konishi, Hisatoshi;  
 Kiji, Jitsuo; Fukuyama, Keiichi; Kumobayashi,  
 Hidenori; Akutagawa, Susumu  
 PATENT ASSIGNEE(S): Takasago Perfumery Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 62178594	A	19870805	JP 1986-19203	19860201
JP 05011117	B	19930212		
EP 235450	A1	19870909	EP 1986-309141	19861121
R: CH, DE, FR, GB, LI, NL				
US 4705895	A	19871110	US 1986-937805	19861121
PRIORITY APPLN. INFO.:			JP 1986-19203	A 19860201



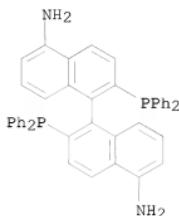
AB Phosphine derivs. (I; R = H, Ac), useful in asym. synthesis, are prepared. Nitration of oxide (+)-II (R1 = H) in Ac2O gave 98.6% dinitro derivative (+)-II (R1 = NO2), which was reduced over SnCl2 in EtOH-HCl to give 85.3% diamine derivative (+)-II (R1 = NH2) (III). Reduction of III in MePh over SiHCl3

and Pr3N gave 70.5% phosphine  $(+)-I$  ( $R = H$ ) (IV), which was refluxed with  $Ac_2O$  and  $Pr_3N$  under  $N_2$  to give 76.0% diamide  $(+)-I$  ( $R = Ac$ ). Asym. isomerization of  $Me_2C:CHCH_2CH_2CMe:CHCH_2N\text{Et}_2$  in the presence of  $Rh\text{-IV-norbornadiene C104-catalyst}$  gave  $Me_2C:CHCH_2CH_2CHMeCH:CHN\text{Et}_2$  with 39.6% conversion.

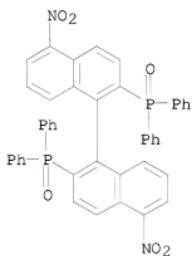
IT 114317-10-1P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and complexation of, with rhodium norbornadiene perchlorate)

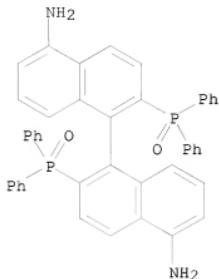
RN 114317-10-1 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphino)-, (+)-  
 (9CI) (CA INDEX NAME)



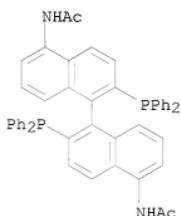
IT 114317-08-7P 114317-09-8P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and reduction of)  
 RN 114317-08-7 CAPLUS  
 CN Phosphine oxide, (5,5'-dinitro[1,1'-binaphthalene]-2,2'-diyl)bis[diphenyl-  
 , (+)- (9CI) (CA INDEX NAME)



RN 114317-09-8 CAPLUS  
 CN [1,1'-Binaphthalene]-5,5'-diamine, 2,2'-bis(diphenylphosphinyl)- (CA  
 INDEX NAME)



IT 114317-11-2P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 114317-11-2 CAPLUS  
 CN Acetamide, N,N'-[2,2'-bis(diphenylphosphino)[1,1'-binaphthalene]-5,5'-diyl]bis-, (+)- (9CI) (CA INDEX NAME)



OS.CITING REF COUNT: 27 THERE ARE 27 CAPLUS RECORDS THAT CITE THIS RECORD (28 CITINGS)

=>

---Logging off of STN---

=>

Executing the logoff script...

=> LOG Y

10/539640 12/30/2009

STN: SEARCH

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	198.54	384.64
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-28.90	-28.90

STN INTERNATIONAL LOGOFF AT 13:32:20 ON 31 DEC 2009